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JOURNAL *of the* AMERICAN DIETETIC ASSOCIATION

THE EFFECT OF VITAMIN A UPON INCIDENCE AND SEVERITY OF COLDS AMONG STUDENTS[1]

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THE belief has become current in the past few years that cod liver oil, taken in the autumn, reduces the number and severity of colds during the winter. This belief was supported by the study of Holmes and Comstock (1), in which a reduction in number of colds was found in a group of 102 persons taking cod liver oil daily, over a similar control group; as well as a reduction of one-half in the time lost due to colds.

Definite prophylactic effect against colds in medical students taking cod liver oil tablets has recently been reported by Beard (2). Gardner (3) found *no reduction* in the average *number* of colds, but a *lessened severity* in 53 per cent and shortened duration in 40 per cent of a group of school children receiving haliver oil, as against 36 per cent and 27 per cent in a group receiving large amounts of vitamin A in food. These authors believe that vitamin A plays a definite rôle in decreasing the incidence and severity of colds among school children.

On the other hand, well-planned studies such as those of Wright and Frost (4), Barenberg and Lewis (5), and Hess, Lewis and Barenberg (6), in which infants were given cod liver oil or other rich source of vitamin A, have been consistently negative in respect to any effect on the incidence or severity of respiratory disease, and the latter conclude that there is no evidence that vitamin A is an "anti-infective" vitamin as has been claimed, or that our dietary needs supplementing with vitamin A.

[1] With the coöperation of the Student Health Service, the Pharmacology Department of the Medical School, and Home Economics Department.

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Vitamin D has also been considered as the agent in cod liver oil effective against colds; and irradiation with carbon arc or Hg vapor lamps as a source of vitamin D, tried but with no effect upon colds in infants (7, 8), in school children (9), or in adults (10). Maughan and Smiley (11, 12) do, however, report a reduction in frequency of colds of 27.9 to 40.3 per cent among students irradiated weekly with mercury vapor lamps for short periods during the winter.

Of the two factors stated by Green (13) as operating either directly or indirectly in resistance to infection, deficiency of vitamin A unquestionably furnishes one; namely, a lowering of natural defense barriers due to fixed tissue changes.

The profound changes in epithelium described by Mori (14) in 1922, in the eyes of animals fed on vitamin A-deficient diets, has been abundantly confirmed by Mori (15), Wolbach and Howe (16) and others, for the glands about the mouth and in the respiratory and genito-urinary tract. The occlusion of the ducts of glands by such altered epithelium results in dilatation and cyst formation; the occlusion of bronchioles, in abscess formation.

It has been assumed generally that such keratinization and sloughing of epithelium makes easy the entrance of bacteria through the denuded mucous membrane, with the production of secondary infections, and is responsible for the constant and early finding of abscesses at the base of the tongue, and of otitis media and sinus infection in experimental animals on vitamin A-deficient diets (17, 18).

This is the basis for the belief that minimal amounts of vitamin A in the diet, or a moderate deficiency, may result in lowered resistance to infections, hence increased susceptibility to such conditions as the common cold and other respiratory diseases. Furthermore, Mellanby (19) reported definite reduction in incidence of puerperal sepsis following the use of vitamin A concentrates. Since the genito-urinary tract suffers the same epithelial changes as the respiratory tract in vitamin A deficiency, this evidence of protective effect of vitamin A on the former strengthened the belief in its value for the latter, and added to the confidence in vitamin A as an "anti-infective" agent.

Wolbach and Howe (20), however, point out that while local suppuration may occur adjacent to cysts distended with desquamated epithelium, extension of infection through the living epithelial tissue is rare. They emphasize that vitamin A cannot be considered an anti-infective agent.

The other factor in immunity, namely, cellular and humoral change, has also been studied in reference to vitamin A deficiency with con-

flicting evidence. A recent summary by Green (13) reports no change in vitamin A-deficient animals, in either red or white blood cells, in complement or in natural hemolysins and agglutinins, but a definite reduction in *acquired* hemolysins and agglutinins. The significant observation is made that in nasal cultures *B. pyocyaneus* appears only *after* vitamin A deficiency has developed. Evidence continues to accumulate to show that experimental animals on vitamin A-deficient diets are definitely more susceptible to bacterial inoculation by whatever route administered (21, 22), and Sherman has shown conclusively that the vitamin A content of tissue, particularly liver, kidney and lung is diminished in animals as vitamin A deficiency progresses (23).

Negative effects of vitamin A upon colds in adults need not necessarily follow in line with those reported for children. Children, as is well known, show an increased susceptibility to certain so-called "childrens' diseases," a susceptibility which diminishes with age, while the period of greatest incidence of colds is from 0–5 years (24). Children also exhibit symptoms resembling a cold in the early stages of many diseases; hence, such symptoms may represent merely the child's reaction to various changes in its environment because certain factors of resistance have not yet matured; factors necessary, perhaps, for the effective action of vitamin A. It is true that xerophthalmia in infants is amenable to vitamin A therapy, but xerophthalmia is recognized as a late stage of vitamin A deficiency, whereas respiratory infections are an early manifestation of such deficiency. It is significant that xerophthalmia appears in young animals on vitamin A-deficient diet, whereas respiratory infections are more common in older animals which have suffered a *milder* deficiency over a longer period.

Since colds among students may form as much as 25 per cent of all illnesses treated, according to Forsythe (25), it has seemed worthwhile to study the effect of added vitamin A upon the number and duration of colds among students where vitamin content of the diet could be noted.

PROCEDURE

The present study covers a period of two years and has been made possible through the coöperation of the University Student Health Service, the Pharmacology Department of the Medical School, and the Home Economics Department. The first year, 66 girls from classes in home economics volunteered to take cod liver oil, carotene solution, or cod liver oil tablets for the first 4 months of the school year, and were accordingly divided into groups: Group I took one tablespoonful

of standard cod liver oil,[1] daily (or 6 times weekly), containing approximately 7000 units of vitamin A; Group II took carotene solution[1] in a dosage intended to be equivalent in vitamin A units to the tablespoonful of cod liver oil, but later found to be almost 1000 units less; Group III took cod liver[2] oil tablets in maximum dosage usually recommended, namely 6 per day. This was later found by bio-assay to be equivalent to about $\frac{1}{10}$ of the tablespoonful of cod liver oil. Group IV received the ordinary lactose placebo, 4 daily; and Group V served as controls. No groups were informed as to what they were taking, with the exception of the cod liver oil group. Lactose was used because in the dosage given it was believed to be without any marked physiologic effect, but would serve as a check on the psychologic effect which might be obtained in some people from the mere taking of medicine.

A preliminary history was taken on each student, giving the number, duration and severity of colds customary during the school year. No physical examination except the usual pre-entrance examination by the Health Service was made; but in view of the findings of Doull and others at Johns Hopkins (26), abnormalities of the upper respiratory tract which might have been detected, probably bear no relation to the incidence or severity of colds, hence were unimportant for the purposes of this study. Records were kept from October to May by the students volunteering for the study, the presence of colds being recorded twice each week, with classification and duration of symptoms. In the middle of the year, a report was obtained from each student stating if any improvement had been noted in colds or in any other way such as in appetite, constipation, endurance.

About one-half of this group was sufficiently convinced of the value of the treatment to continue medication for the first half of the second year, and all kept records the entire second year. In addition, the sophomore medical students (chiefly men) volunteered for the study and an additional group of men and women students with a few of the faculty increased the number of volunteers to about 150.

Haliver oil[3] was included in the oils tested the second year and salad oil given to a few as a control group.

In the second year the dosage of cod liver oil was reduced to two teaspoonfuls, daily (7 times a week), since some of the volunteers found difficulty in taking the larger quantity for the length of the study.

[1] Supplied by Mead Johnson Company.
[2] Supplied by H. A. Metz Company.
[3] Furnished through the courtesy of Abbott Laboratories.

Dosages of the other materials were adjusted accordingly. The vitamin A content of the supplements as determined subsequently by bio-assay is given in Table 1. Records were taken weekly on special blank forms, giving the symptoms of colds present, with their duration, as well as a record of body weight—and a list of vitamin A-rich foods eaten during the week was checked by each student.

To compare the effect of increased vitamin A intake in the diet, with that obtained through taking vitamin-rich oils, a group of 9 girls at the Women's Dormitory was given a diet planned to contain at least 7000 units of vitamin A, daily, and records kept of colds.

The groups, originally planned to include an equal number of students, unfortunately were subject to various unavoidable changes which left some groups smaller than others. Assignment to a given group was

TABLE 1

Units of vitamin A given

SOURCE	1932		1933	
	Dosage	Units of Vitamin A*	Dosage	Units of Vitamin A*
Cod liver oil	1 tbsp.	7000	2 tsp.	5700
Halibut liver oil	—	—	14 drops	5000
Carotene solution	50 drops	6500**	30 drops	4000(+)
Cod liver oil tablets	6	750	9	1125
Lactose	4	0	3	0

* Sherman Unit (Old U. S. P.).

** Undoubtedly some loss in small bottles issued to students.

determined to some extent by the willingness of the student to take the vitamin source indicated; but in general merely by random selection. To determine whether such random selection placed more persons susceptible to colds in one group than in another, the percentage of individuals reporting in their histories more than two colds per year, as customary, was calculated for each group of volunteers. For the small number of students reporting for both years (about 65), this percentage was between 25 and 35 per cent in all groups, except those taking cod liver oil tablets, where it was 53 per cent. As will be seen later, this worked no undue hardship against this preparation where the figures for incidence and duration of colds were as low or lower than for other groups. For the total body of volunteers studied (about 200), almost exactly 60 per cent of those in the vitamin treated groups reported more than 2 colds per year, against 40 per cent in the lactose and control

groups. It is evident, therefore, that there were more susceptible individuals in the treated than in the untreated groups, hence any improvement recorded would be an under-estimate rather than an over-estimate of the value of the vitamin-containing material.

RESULTS

The effect of vitamin A supplements upon the average *number of colds* per person is given in Chart 1; for two consecutive years for the group of 66 volunteers, and for one year only for the entire group of 200. It is obvious that the differences in number of colds between the groups are too small to be significant for either body of subjects.

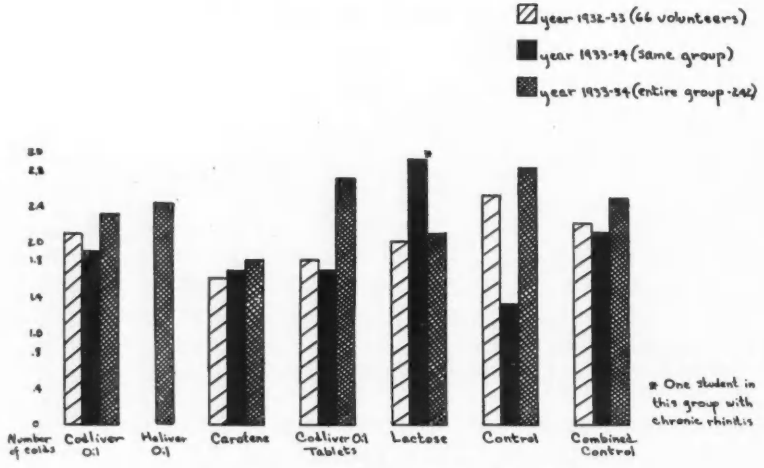

CHART 1. *Average number of colds among student volunteers*

When *duration* of colds is compared, however, expressed as mean number of days per person colds were present (colds-days), differences between treated and untreated groups become larger, as seen in Chart 2. For the first year, variations among groups were large, due undoubtedly to the small number in some groups and to the newness of the experiment. Later records showed much less divergence. It is evident that the duration of colds is longer in the untreated group than in the treated groups. Statistical comparison of the figures for the cod liver oil group, with that for the control group, gives a mean difference of 11.52 with a probable error of ± 3.53.

To be regarded as statistically significant, such difference between means should be four times the probable error of the difference, thus giving odds of 142 to 1 of obtaining the same figure again, if the circumstances were duplicated. The difference in the present case is 3.5 times its probable error, indicating strong probability that the difference is significant.

The similarity in the duration of colds among all the treated groups is to be noted, a similarity even more marked for the entire group in 1933, not shown on the chart. In all cases the oil-treated groups show a lower figure for duration of colds than the controls.

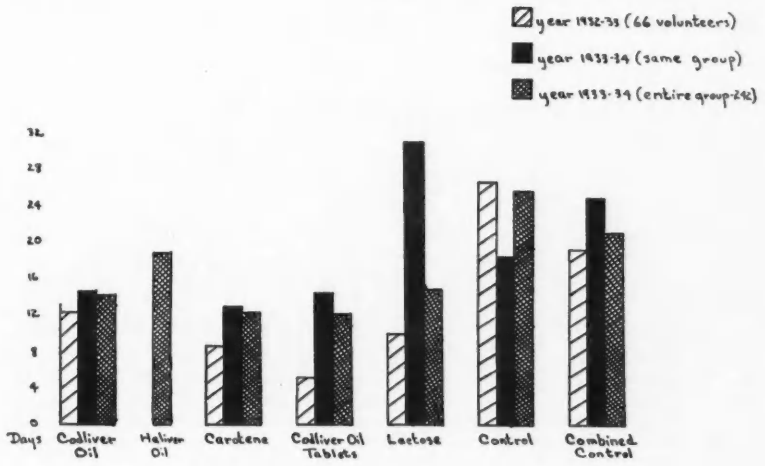

CHART 2. *Mean days per person—colds present*

The figures for duration of colds in the lactose group are particularly interesting, being very low in the small group of the first year (9.1) and very high for the same group in the second year (31.1), higher than the figure for the entire group (18.35). The figure for all volunteers for both years is therefore somewhat equalized at 15.13, a figure very close to that for the vitamin-treated group, but definitely lower than for the controls. Lactose in the dosage given was believed to be without physiological effect, and when tested on rats showed no vitamin A potency or other effect. It is true that Outhouse (27) has found improved mineral absorption and retention from feeding 1–2 grams of lactose daily to rats; and Sunderlin (28), improvement in high-calcium rickets

in rats from lactose at a 25 per cent level, accompanied by lowered pH in the intestinal tract. Robinson (29), however, finds no consistent change in pH of the gut with lactose from 200 to 400 grams daily. Hence it seems hardly likely that the 3 or 4 tablets daily (1 grain) of lactose (85 per cent lactose + 15 per cent sucrose) given in this study have any real effect upon metabolism; and apparent effect upon colds may be due merely to the psychological effect of taking medicine.

The distribution of the improvement in duration of colds among the volunteers is shown in Table 2. For the first year, the percentage of students improved is similar for *all treated groups*, even the lactose group being only slightly lower than the vitamin-treated groups. No improvement was found in the controls, however. Likewise, percentages

TABLE 2

Improvement in colds from vitamin A therapy

	NUMBER OF STUDENTS	GROUP STUDIED TWO CONSECUTIVE YEARS			GROUP STUDIED ONE YEAR ONLY	
		Per cent students improved				
		Both years	First year only	Second year only	Number of students	Per cent improved
Cod liver oil	22	13.2	36.4	45.5	55	60.0
Haliver oil	—	—	—	—	39	64.1
Carotene solution	9	0	44.4	44.4	19	58.0
Cod liver oil tablets	15	6.6	33.3	26.6	29	51.7
Lactose	8	12.5	25.0	12.5	21	42.8
Control	7	0	0	57.1	25	24.0
Total	61				188	

of students improved in both years are similar. However, the value of such comparison is considerably lessened by the improvement of 57 per cent in the controls for 1933 over 1932, indicating either that numbers were too small for comparison in the first group studied or that some factor, climatic or otherwise, operated in the second year.

It was interesting to learn also whether improvement in colds, when present, occurred while taking the vitamin preparations or later, after time had elapsed for storage of vitamin. Comparison of the number showing improvement the first semester and the second, shows no significant differences. From 50 to 60 per cent of the treated groups showed improvement, equally divided between the two semesters, as against 38 to 40 per cent in the lactose group and 10 to 25 per cent in the controls. The improvement in every case, however, is greater in the treated than in the control group.

As a whole, the volunteers for this study were convinced that vitamin therapy was effective in reducing the duration of colds. Even the medical students receiving treatment, who recognized the improvement sometimes obtained from the mere taking of medication, were nevertheless certain of real improvement in most cases. The extent of this confidence and its reliability are measured in Table 3, where the percentage of students *actually* improved as to colds is compared with the percentage who *believed they were improved*; the frequency of other improvements is also given. It will be noted that the number believed improved is slightly larger than those actually improved, but the divergence is not great.

TABLE 3

Percentage of students showing improvement during vitamin A therapy

GROUP	NUMBER OF STUDENTS	PER CENT BELIEVED IMPROVED IN COLDS	PER CENT ACTUALLY IMPROVED IN COLDS	PER CENT SHOWING OTHER IMPROVEMENTS
Cod liver oil	63	66.7	60.0	58.7
Haliver oil	46	71.7	64.1	36.9
Carotene solution	21	71.4	58.0	57.1
Codliver oil tablets	32	68.7	51.7	46.8
Lactose	23	47.8	42.8	34.8
Control	32	9.3	28.1	0
Combined (Lactose plus control)	55	25.5	36.0	14.5
Totals	217			
Group receiving less than 5000 units of vitamin A	28	39.3	21.4	10.7

Conspicuous among other improvements recorded by the students was that in "endurance," or diminished fatiguability. A few noted gain in weight, although, for the subjects as a whole, weights gains or losses in all groups were insignificant, averaging from -0.3 pounds to $+2$ pounds for a half-year. Relief of constipation from the vitamin-rich oils and improved appetite were frequently noted. Improvement in skin blemishes or "pimples" was common. The latter is particularly interesting in the light of reported cures of certain papular eruptions with vitamin A preparations (30, 31, 32).

Was the diet of the volunteers in this study adequate in vitamin A?

Since one of the purposes of this experiment was to determine whether colds were a manifestation of a marginal supply of vitamin A in the diet,

each student was asked to note on the weekly colds-record, the number of servings eaten during the week of such vitamin A-rich foods as liver, eggs, cheese, cream, spinach, peas, tomatoes, sweet potatoes, carrots. The weight of average servings were taken from tables by Rose, and the vitamin A content of the foods used was obtained from a revised list of the Bureau of Home Economics, U. S. Department of Agriculture. Milk was not included in the general list. Milk consumption for the majority of the girls in the study was obtained later, however, and added to their records.

The vitamin A content of the diet for one week of each month for the first half-year was calculated for each student in 1933, and the average of the weekly figures reduced to a daily basis, taken as representative

TABLE 4

Comparison of incidence and severity of colds with vitamin A intake

GROUP	NUMBER OF STUDENTS	YEAR	AVERAGE NUMBER PER PERSON	
			Colds	Days
Volunteers receiving less than 5000 units of vitamin A from all sources daily	28	1933–34	2.8	22.6
Volunteers receiving more than 5000 units of vitamin A from all sources daily	108	1933–34	2.4	17.7
Untreated group-average 4327 vitamin A units daily from diet	18	1933–34	2.9	25.4
Treated groups-average 4327 vitamin A units from diet, plus 5000 units from medication	81	1933–34	2.3	16.9
Untreated group	7	1932	2.5	27.6
Treated group	34	1932	1.8	10.1

for that student. These figures for daily vitamin A, exclusive of milk, varied from one at 1450 to one at 10,000, the average being 4327 units. The majority of the figures fell between 3000–8000, with 90 per cent over 3000. The average number of units added by milk was 952.

To determine the effect upon colds of the total amount of vitamin A consumed from all sources, the average number and duration of colds for all subjects receiving less than a minimum amount of vitamin A were compared with the number and duration of colds among subjects receiving larger amounts. Since the average daily intake of vitamin A was 4327 units (old U. S. P.), the minimum figure was set at 5000 units, and the average number of colds and their duration in days calculated for all subjects receiving *less* than this amount of vitamin A from whatever source. Similar figures were obtained for all those receiving *more* than

5000 units of vitamin A. The figures are given in Table 4. It will be seen that the difference between them is about 0.4 cold, or 5 days per person, a difference of the same magnitude as the lowest figures between treated and untreated groups in Charts 1 and 2.

An additional measure of the effectiveness of food sources of vitamin A against colds is found in the study of 9 girls at the Women's Dormitory. From December 1, 1933 to March 25, 1934, the diet of the special table formed for them was enriched by 5000 units of vitamin A over the usual dormitory fare. This was done by using concentrated food sources of vitamin A, by serving tomato juice and eggs freely, and by adding an evening lunch of cream cheese and crackers when necessary to make up the 5000 units[4]. While figures for such a small group are of doubtful value, it is of interest that the average *number* of colds for this group receiving 7000 units of vitamin A daily is 1.8, or lower than the average of 2.4 for the entire group receiving over 5000 units, being of about equal magnitude with the averages for the groups treated with cod liver oil, carotene, etc., given in Chart 1. The average number of *colds-days* per girl, 12.7, is also lower than that of 17.7 for the whole group receiving over 5000 units, and again is of similar magnitude to the treated groups shown in Chart 2.

DISCUSSION

From whatever angle these figures are considered, the same fact becomes apparent: namely, that increased amounts of vitamin A produce a *slight decrease* in the *duration* of colds, a decrease shown to be sufficiently large to be termed statistically significant. Whether this vitamin A is furnished by a diet enriched by various vitamin A-containing foods, or is supplied as one of the fish oils, seems to make little difference. Carotene solution, although given in a dosage containing somewhat less vitamin A than the other oils, gave as good or better results, indicating good utilization of vitamin A from the pro-vitamin form found in carotene; and indicating, also, no superior effects from the vitamin D-containing oils.

It is evident, if the estimate of the vitamin content of the diet here used is of any value, that the majority of the volunteers in this study were not suffering from a marked deficiency of vitamin A. Ninety per cent of subjects showed 3000 or more units of vitamin A, exclusive of milk, a figure which has been considered adequate to normal health (33).

[4] This service was made possible through the kindness and diligence of Miss Zola Shirey, dietitian at the Dormitory.

If freedom from colds is to be considered a measure of vitamin A adequacy, however, then 5000 units or more daily is desirable, since persons receiving 5000 or more units of vitamin A showed a lower figure for duration of colds than those receiving less than 5000.

To determine more accurately, if possible, the individual store of vitamin A available and the amounts required to lower the cold rate materially, a photometer has been used such as that recommended by Jeans (34). Results with this instrument will appear in a later report.

With respect to the *number* of colds, vitamin A additions to the diet may cause a slight reduction, which, however, is probably not statistically significant. This agrees with the recent report of Shibley and Spies (35), who also report an effect on duration of colds from vitamin A similar to those found in this study. In some cases, colds were entirely prevented, during the year, in treated subjects, but it is impossible to say that such improvement might not have occurred in spite of the treatment.

The incidence of colds found among the control groups conforms to that found among Baltimore students in the study of colds carried on under the John J. Abel Research Fund (36). These investigators found 2.6 colds per student during the school year; and 3.2 and 3.1 for a family group studied in 1928 and 1929, respectively (37). Townsend (24) gives the slightly lower figure of 1.9 per person from October to March, 1924, and 1.93 for family groups; and Collins (38), 1.9 for a family group and approximately 3 for students. The similarity in the yearly averages of this study of 2.5 for the small group of 1932, of 2.9 for 1934, and of 2.8 for the entire group for both years, lends weight to the reliability of the records kept. Against these figures, records of 2.4, 2.4 and 2.0 for 1934, and of 2.3, 2.4 and 1.8 for both years for cod liver, haliver oil, and carotene, point to a very slight reduction in number of colds from added vitamin A.

Distribution of colds throughout the year in this study also follows that given by Townsend and Sydenstricker (24) and Frost and Gover (39). Chart 3 indicates the usual high incidence in the fall, again in the middle of December, and again in the spring, with decreased incidence between those periods. The peaks in the present study come a week or two earlier than in the studies quoted, which probably represents a local weather variant.

Comparison of the weekly attack rate for treated and untreated groups of 1933–34 (obtained by dividing the total number of colds for the week by the number of subjects and multiplying by 100) shows, as might be expected, a higher incidence in untreated groups, but a similar time

distribution. However, in the untreated groups there are more points of high incidence than in the treated group, indicating either too few numbers for comparison or the operation of two factors in the weekly rate, namely, weather plus relative vitamin A deficiency. This is particularly noticeable in the winter months. Since the respiratory infections of this period include more influenza-type infections and fewer true coryza cases, according to Frost and Gover (39), this suggests that vitamin A may be more effective against a bacterial infection than against a virus infection.

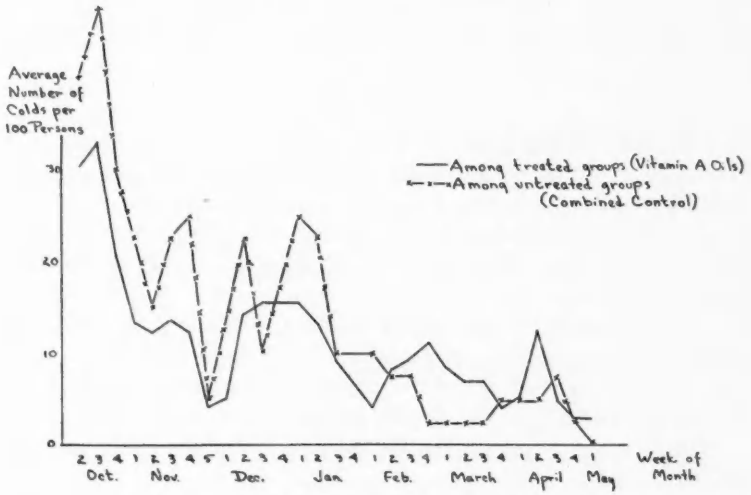

CHART 3. *Weekly attack rate, per cent, for colds—1933–34*

It is evident that while liberal amounts of vitamin A may be one factor in reducing the severity and duration of colds, it is only one, and not in any sense specific. That seasonal or weather factors play a part, is obvious. Dochez (40) believes that colds are primarily infections with weather a secondary factor. The nature of the infectious agent is still little understood, though believed by Dochez, Long, Doull and others (41) to be a filterable virus and not the visible bacteria commonly present in the nose and unchanged during a cold. Rosenow, (42) on the other hand, believes colds, influenza, and other respiratory infections to be due to streptococci, but streptococci differing from one another in behavior that can be predicted by determination of such characteristics as catophoretic time. Even he recognizes *lesser virulence* of the or-

ganisms in throats of well persons, and *altered virulence* during epidemics. The belief of such men as Kneeland (43), therefore, that colds in autumn are due to a filterable virus, while the more severe respiratory diseases of later winter and spring, accompanied by systemic reactions, are due to bacterial invasions, offers a more adequate explanation of observed facts. The virus is credited with preparing the ground for the subsequent invasion by bacteria.

In view of its known action in preserving intact epithelium, vitamin A might very well act, therefore, to increase resistance against such invasion, though perhaps ineffectual against the virus. Or it may simply mean greater storage of vitamin A due to longer time elapsed since the beginning of the experiment.

CONCLUSIONS

1. Vitamin A, in the form of cod liver oil, haliver oil, and carotene solution reduced the average *number* of colds little, if at all, in a group of over 200 students studied from October to April inclusive.

2. The average *duration* of colds, however, was reduced by such treatment by from 5 to 10 days per student, which, on statistical handling, shows a significant difference.

3. Approximately 60 per cent of students receiving such treatment showed some improvement in number or duration of colds.

4. Approximately 50 per cent reported improvement in endurance, sense of well-being, appetite, or skin eruptions.

5. The average vitamin A content of the diet of these volunteers was 4327 units (old U. S. P.).

6. Students receiving 5000 or more units of vitamin A in their diet, alone, or in the diet plus the oil taken, showed a decrease of about 0.4 in the average number of colds and of about 5 days in the average duration, over the figures for the students receiving less than 5000 units daily. Since the diet of the majority of the students averaged 3000 or more units of vitamin A, which has been given as adequate, it is evident that these students were not suffering from an actual deficiency of vitamin, but that the larger amounts nonetheless produced improvement in colds.

7. A group of 9 girls receiving 5000 additional units of vitamin A in the form of food, also gave a low figure for incidence and duration of colds, showing that an increased intake of vitamin A from any source reduces the average duration of colds.

8. The average number of colds per person in the control groups, 2.5, 2.9, 2.8, is comparable to those obtained in other studies, while the seasonal distribution is the same.

9. It is concluded that vitamin A is a factor in reducing somewhat the severity and duration of colds in young adults, although not a specific against colds, and not to be considered a cure for a cold (44).

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A NURSE'S VIEWPOINT OF COURSES IN FOODS, NUTRITION AND DIET THERAPY FOR NURSES[1]

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THE subject assigned to me for discussion indicates a wish for assistance or better understanding between nurse and dietitian on a common problem which dietitians believe the nurse can help to solve. I assume, therefore, that you wish a candid opinion, from the nurses' point of view, of the courses in nutrition and diet therapy as now being given. Considering my own experience limited for such a project, I essayed to learn the attitude of certain others of my profession with the results which might be expected from such a method—a different opinion from each, depending upon her experience and taste.

This paper portrays something of these expressed attitudes but with a decided predominance, perhaps, of my own views. The discussion seems to fall naturally into three divisions: (1) the content of the courses as outlined by your own association and certain nursing groups; (2) the presentation of such material in classroom or laboratory; and (3) the practical experience of the student, commonly thought of as "diet kitchen experience."

To serve as a foundation in considering these three phases I should like to present two questions for thought: First, what are the needs of the student in the school of nursing of the present day which are satisfied by the courses in nutrition and diet therapy? Second, are the courses as now being taught satisfying those needs?

That these needs differ considerably from those of even ten years ago, you will quickly agree. That our efforts to establish a health awareness and a preventive attitude in human beings, *en masse*, could not help but have a widespread effect upon our teaching in nursing schools, needs no argument for support in this group. Naturally such changes could not help but include the teaching of nutrition. Likewise, advances in medical knowledge have not only changed but greatly increased the use of diet in the treatment of disease, with corresponding increase in the material which the nurse must know and use.

But in this change, progress if you will, have we been able to leave behind any of the earlier objectives of the courses in dietetics, and is

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there any evidence that we have suffered by adding material without a compensating increase in practical experience or some other method of adjustment?

I am thinking primarily of the fact that it is still rather important that the nurse be able to prepare and serve food which the patient is permitted to have, attractively enough that he will, or can be persuaded to eat it if at all possible.

In our zeal to inform the student of the theoretical phases which have loomed so large in recent years, have we sacrificed her development of a good practical foundation which is after all very necessary for good bedside nursing?

That the nurse who does not understand the nutritional needs of herself and her patient in this modern world of vitamins, caloric values and balanced diets, is not only handicapped but even dangerous, cannot be denied, but having given her the foundation principles must we not consider leaving some of the detailed information for her to get for herself, perhaps even in post-graduate work? After all, there is a limit to the amount of new information and skill which any human being, gifted or stupid, can absorb within a given period of time, and some of us feel that it is high time we ceased trying to make an all-round specialist in three years.

Granted, then, that it is necessary for the nurse to understand the values of foods, the importance of nutrition, and at the same time be able to prepare a satisfactory tray, do the courses as outlined enable these objectives to be satisfied?

Of course, there are still in existence those schools that provide the lowest minimum of theory in all subjects; and to suggest that the 20 hours required by the Pennsylvania State Curriculum in Elementary Dietetics are adequate, is presupposing that a good foundation in chemistry and physiology has been provided, which we know would doubtless never be the case. Standards are being gradually raised, however, and it is to be hoped that such minimums will soon be unknown in nursing schools.

For me to attempt to criticize the course outlines as prepared by your organization, would savor of the conceit of ignorance. Indeed, rather would I congratulate you as a group on your foresight and wisdom in endeavoring to set up courses acceptable to both yourselves and the nursing profession. Their satisfaction will no doubt be tested with all other subjects of the nursing school curriculum in the present nation-wide study of the curriculum.

It is in the presentation of that subject matter in the classroom or laboratory that we find material for discussion and possible suggestions for guidance.

Of course we have here as our first topic, as in a discussion of the teaching of any subject, the instructor. It is impossible to get away from the fact that she may ruin a satisfactory course or save an impossible one, depending upon her personality, ability and interest. The young, eager instructor in any subject often finds it difficult to reconcile herself to the fact that her course is not the only one or the most important one in the curriculum, and that she must of necessity pick and choose the subject matter depending upon the immediate situation.

Again I would pay tribute to you as a group for your rapid progress along the line of college preparation for all who teach in schools of nursing. You have attained, apparently by your own determination within a few years, standards of education for instructors which it has taken the nursing profession generations to equal.

That these instructors do not always make the most of their opportunities is sometimes their own fault and sometimes that of the nursing faculties or hospital administrators.

In smaller institutions the triple rôle of steward, dietitian and instructor may be given them, and what is more natural than that they should relegate the instruction to the place of least importance, especially if they are not particularly interested or able to teach? I fear that such situations have done much to jeopardize the standing of your group in the past.

Again, pressure of time causes many to resort entirely to that form of teaching which seems easiest, that is, the lecture method. That good lecturing has its place should never be denied, but we also know that student participation, especially along lines of problem solving, produces most satisfactory results.

When time is at a premium (and when is it not?) it is well for the dietetics instructor to compare notes with the chemistry and physiology instructors, that she may know what the student has already been exposed to and possibly incorporate some of the student activity, mentioned above, by way of reviews, etc.

Likewise, a comparison of terms used by instructors in various courses might save the student bewilderment. It is difficult for us to understand the mental hurdle which must be jumped by the student in understanding that amylase and amylopsin can be one and the same thing, but nevertheless it does seem to complicate the students' thinking.

In the laboratory courses, the job method is too widely used, again probably with the idea of saving time. Your own course outlines follow a medium trend, apparently, with preparation of the entire meal introduced gradually. No doubt such a plan was suggested after due consideration and experiment and therefore criticism from me should have little weight. Nevertheless, the student who learns how to cook eggs in all possible ways in a given lesson, without the accompanying experience of serving those eggs as a part of a complete meal, may or may not carry over some of the small but important aspects of getting those eggs to the patient in such shape as to cause him to enjoy them.

Lest you should think that we are lacking in understanding of your problems, I would list some of the difficulties which we all know are likely to complicate situations for you.

The matter of adequate laboratory equipment should not be a problem in a present day school, but the quarrel seems to rest upon various authorities' ideas of adequate. Here again I believe your reputation has suffered because some eager persons have insisted that they could not teach without all the latest gadgets, rather than using their womanly intuition and waiting for the proper moment to broach the subject of more double boilers for the cooking classes. My consolation for you is, that as nurses are being criticized for their inability to improvise in the home, an instructor with imagination might possibly use such a handicap to the advantage of the future private duty nurse.

That you are entitled to know when your class hours will be, a reasonable time in advance, should need no mention; but it is true that a planned correlated course, especially in elementary nutrition, is not always found even today in smaller schools.

The matter of adequate hours for class instruction needs to be considered in relation to the length of other courses in the curriculum. To say that the hours as planned by your own group are a bare minimum, will arouse immediate argument in some localities. The requirement of the Pennsylvania Curriculum has already been referred to sufficiently, it would seem. It is well to remember that a generous allotment of hours, alone, never made a successful course. A good instructor can make every minute count and will use every opportunity to compensate for lack of formal class hours. Such opportunity can be provided by a careful handling of diet kitchen experience, which brings us to the third phase of our discussion.

How does the practical experience in the diet kitchen fulfill or fail to fulfill its rightful duty in the students' experience?

The first duty is described in the syllabus as laboratory experience for the advanced course in diet therapy. This course is practically always a lecture course, which should be preceded or accompanied by the general medical and possibly surgical lectures. That its success is closely allied to the applications made possible for the student in practice is obvious, and consequently correlation between the two is important. That laboratory hours in the formal course would satisfy this need is suggested and recommended by some who have given the matter careful study.

Such laboratory hours cannot be an excuse for poorly planned experience in the diet kitchen, however, as this is the only opportunity for the student to study the complete picture of the patient whose disease requires a special diet which she can plan, prepare and serve. Too often the student's experience here is too far separated from the formal lecture course in the classroom, or she has no opportunity to see the patient for whom she has prepared a special diet, or worst of all, her duties are divided into jobs with vegetables on one day, soups on another and so on with never a complete tray assembled by the same individual.

Here, too, choices must be made by the dietitian. If the students have had limited experience previous to training, some of the more complicated aspects must be sacrificed for a better grounding in simple cooking. If the theoretical courses have been held down to a minimum, case studies and individual instruction may help to provide the student with a workable knowledge of the use of diet in disease.

Case studies have become an important part of the experience in many departments of nursing schools and they seem particularly satisfactory in the diet kitchen. Again, they must be used with common sense. Copying material out of a reference book and attaching it artificially to an account of experience with a patient, which may have been in no way stimulating or satisfying to curiosity, never helped any student to a better understanding of either disease or patient. That such a situation may be partly or entirely due to the fundamental attitude of the student, in some cases must of course be agreed to.

In the foregoing you will note that very little has been said in direct reference to the preventive aspects such as teaching of patients, developing a preventive attitude and all such points which are coming to mean so much in our present-day instruction of the nurse. The reasons for this are varied and possibly not easily explained.

First, much of such attitudes must be instilled indirectly, being a part of the atmosphere of the school as it were, and not confined to any

definite part of any subjects but rather emanating from the instructor herself, as an attitude, and emphasized through her methods of teaching. It is assumed that the present-day nutrition instructor will provide her part of that atmosphere.

Second, as we have already indicated, the student must first receive a good grounding in fundamentals and in the opportunities for other than the indirect instruction above mentioned. Such possibilities are likely to be limited by time allotments in many schools. If the dietetic courses will lay the groundwork, the later experience of the student, when she has a more complete picture of the patient, will provide a satisfactory setting for her understanding of the economic, nutritional and preventive aspects of the situation.

With all due respect for those who insist that the time to establish attitudes is in the beginning, that they may grow with knowledge and become a more integral part of the individual's thinking, I still maintain that one brain can absorb only so much within a given time. Until such time as our nursing schools are revamped to provide for more preclinical work in sciences, or some other arrangement is made, we must still insure a proper foundation before we attempt any superstructure with success. That much improvement is needed and can be had in that foundation by improved methods of teaching, is not denied for one second and it would seem as though that should be our greatest concern at present.

All this again brings us back to the instructor as the main figure of responsibility, not only in dietetics but in every course. And it has ever been so in the educational field. She has had every trait of character under the sun suggested as her primary need; I should like to suggest the three attributes which I heard recently described as those which have been responsible for woman's progress through all ages: patience, persistence and courage. And for the instructor I believe the greatest of these is patience.

THE TEACHING OF FOODS, NUTRITION AND DIET THERAPY TO STUDENT NURSES[1]

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ARISTOTLE said that the "one exclusive sign of a thorough knowledge is the power of teaching." We might paraphrase his statement thus: "The power (or ability) to teach depends primarily upon a thorough knowledge of the subject to be taught." While it is not within the scope of this paper to discuss the academic qualifications of the teacher, it does seem apropos to say that no teacher can afford to go before a class without having made careful preparation; the subject matter must be fresh in mind and outlined in logical sequence; illustrations must be ready, for no teacher should neglect this means of clinching the facts to be presented. Indeed, the lesson plan should have been thought through so carefully that the teacher herself thinks of it and can state it, if necessary, in the simplest of terms.

While careful preparation is an essential to good teaching, it is equally important that the teacher shall be mentally alert, a condition which can exist only when one is physically rested and free from strain and worry. The dietitian who has had to take her own rest periods for the preparation of the lesson and who, while trying to interest students in the subject under discussion, is harassed by thoughts of kitchen performance, will probably not be able to impart that enthusiasm and create the interest which makes for ease and pleasure in teaching.

If the teaching on the part of the dietitian is to be successful, she must be given the necessary time for preparation. It might be well to remember that colleges usually consider that, for each hour of instruction, two hours are needed for preparation, and that sixteen hours of lecture constitute a full week's work. Too often, the dietitian must carry on an otherwise full program of supervision of food preparation, purchasing, personnel management, record keeping and other numerous duties and then "crowd in" as an extra activity, the teaching, which if the training school is to function properly, should be considered a major function of the dietitian.

There are, fortunately, many hospitals where an opportunity is offered to develop a satisfactory teaching schedule, and consequently

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place the educational work upon the high plane that it deserves. In this event, the instructor should give careful thought and consideration to the whole educational problem Happy is she if, in her college training, she has included courses in educational methods, curriculum construction and psychology.

If the instructor is of an analytical turn of mind, she will carefully analyze the various phases of her teaching unit and will coördinate these with the educational program of the school. She will, first of all, consider the aim and the objectives of the course. As stated above, they must be in accordance with the general aim of the training which, briefly stated, is to prepare the nurse to meet her professional responsibilities in (1) the care of the sick in home or hospital, and (2) preventive or public health work. The courses in foods, nutrition and diet therapy must function to enable the nurse to plan, prepare and serve a suitable diet when caring for the sick, and to teach the fundamentals of nutrition in the preventive or public health work. The dietitian-teacher needs not only to keep in mind the two general aims, the preventive and the remedial functions of nursing, but also to remember that her student must be prepared to meet these responsibilities under varying circumstances such as are met in private nursing, in the hospital, the clinic or other phases of public health work.

In her teaching, the dietitian must make frequent reference to and give numerous examples of the various situations which must be met. Until quite recently, public health work has been considered a specialized phase of nursing as evidenced by the fact that a number of post-graduate courses have been offered in this type of work. Greater emphasis is now being given to the requirements for such training in the regular training course. This latter policy is occasioned by the changes that have occurred in our economic and social conditions. If the writer senses correctly the signs of the times, the emphasis will soon have changed from that of private nursing to the more social aspects or public health work. For this reason, the nurse needs to be instructed in the cost of food with special reference to low cost dietaries, food habits of the foreign born, and in the teaching of the unfortunate and the disabled as well as the subjects that are usually included in present day courses.

This additional subject matter, as well as the present overcrowded curriculum, leads one to question if such changes are advisable or even possible without a lengthening of the course and the establishment of fairly high and uniform standards of academic requirements. It is interesting to note that the National League of Nursing Education is

now engaged in a study of curriculum revision. Miss Isabel M. Stewart, chairman of the Education Committee, in writing on standards (1) says, "The nursing curriculum should be based on one or two years of general education beyond high school, or academic education combined with professional in such a way as to provide an equivalent background of general education. . . . .By raising admission standards, the professional curriculum is advanced to approximately senior college level." She also adds that the total teaching hours will undoubtedly be increased and that more time will be allowed for ward teaching and study. In other words, a nurses' training school will become "a *real school* whose primary function is education."

While it is sincerely hoped that the above standards will be adopted, it will no doubt be a matter of months and perhaps years before hospitals generally will have accepted them. In the meantime, the dietitian-teacher must familiarize herself with the standards of the school with which she is affiliated and plan her course of study accordingly. If the requirements for entrance are less than high school graduation, the subject matter must of course be less technical than when given to high school graduates or to those having had some college work. The type of teaching will also depend much upon the standards set, as to the sequence of courses. Unfortunate, indeed, is the dietitian who must teach even the first course in nutrition to students without the prerequisites: some knowledge of chemistry and physiology. Likewise, it is hoped that the course in diet therapy may follow or at least parallel the course in general diseases. Otherwise, time is lost in the teaching of correlated subject matter which is fundamental to the subject.

The dietitian-teacher must also carefully consider the content of her course. Indeed, the *aim* discussed above will determine the content. Only such subject matter as will lead to the goal should be included. The dietitian, however, finds herself in an embarrassing situation, for the essentials—even the fundamental principles of nutrition—have increased so remarkably the last few years that it is almost impossible to discriminate without omitting certain essentials. However, an attempt must be made to do so, until such time as more hours are allowed for the course.

The classification of subject matter remains about the same as formerly. The chapter headings of our text books include familiar subjects, although the vitamin family continues to add new members to its number. A different emphasis, however, is placed upon many of these subjects. For instance, we no longer spend weary hours teaching the

preparation of special diabetic foods. We are, however, concocting "substitutes" for allergy diets. If our training schools decide to make an attempt to bring out the social aspects of nursing, then greater emphasis must be placed on public health work. The dietitian must keep her ear to the ground to sense any need for different emphases.

It will be remembered that our formal class work consists of (1) a course in nutrition; (2) a course in foods and food preparation; and (3) a course in diet therapy. We shall not attempt to outline these courses, for that is a fairly well established procedure. There is need, however, for the instructor to consider her objectives with care. Is she teaching for skill, appreciation or knowledge? There is no question but that all three are objectives. The laboratory work in food preparation can only lay the foundations for skill in cookery for this objective is acquired solely through practice. Therefore if the nurse is to acquire even a modicum of skill, provision must be made for her to secure her practice elsewhere during her course. This is one of the reasons why experience in the diet kitchen is required. Not only does she there acquire skill in the care and preparation of food, but in the planning and calculation of diets as well. The nurse is given further understanding of foods in relation to health and disease. Experience gives appreciation, and thus increases the pleasure of performance.

Not only should the student nurse be sent to the diet kitchen for four to six weeks to work under the supervision of the dietitian, but she should be sent to the wards, first, where she may participate in the serving of regular and special diets. From the wards she must also get her contact with patients and disease entities; thus giving her an opportunity to make case studies which are in reality projects in nursing education. The clinic also offers opportunity for a further study of diets, especially of the low cost type, and a study of the cost of foods.

This brings us to a consideration of the methods used in teaching. Hopkins (2) says that the "function of method is to manipulate the materials in such a way as to enable the pupil to reach the objective. It has been further indicated that good method does not waste any time in doing the job." Method may therefore be considered a tool in the hands of the instructor. An instructor may find a certain method or tool more convenient for her use than others. The purpose must always be to secure the interest of the student, since interest is necessary both for acquisition of knowledge and of appreciation and skill. Probably one of the best means of securing interest is for the teacher to manifest some of the enthusiasm which she herself possesses. En-

thusiasm is contagious but may not be conveyed through a monotonous tone of voice and an expressionless face. Much can be done in the first few lessons to orient the student to the subject. Probably one of the best means of accomplishing this is to acquaint the student with the historical background or development of the science of nutrition. In doing so, this development should be definitely linked with the progress made in her own profession. Florence Nightingale's experience in the feeding of 4500 sick and wounded soldiers in one hospital, should emphasize the nurse's responsibility in the feeding of the sick. The story of the discovery of vitamins is dramatically interesting. The proteins, minerals and energy metabolism can be introduced as matters of vital interest.

One of the fundamental principles involved in teaching is to proceed from the known to the unknown, also to proceed from point of interest to new fields. For this reason, it is often advisable to begin the study with a subject in which interest has already been aroused. A few years ago vitamins held the center of the stage. At that time the writer found it worth while to begin the study of nutrition with a consideration of the vitamins. While this subject is still of popular interest, the question of energy metabolism as it affects weight control seems to vie in popularity with the vitamins. Especially does this subject have an appeal to women. For this reason, it may be advisable to start the course with a study of energy metabolism, following the orientation period of the course.

In connection with this theory, we may discuss briefly the two methods of approach used in the teaching of diet therapy. One is that of teaching the subject around the disease entity—as the subject pertains to diabetes, nephritis, etc. The other method recently proposed is to teach the subject around the food constituent involved. For example, a low carbohydrate diet is taught as an entity with its application to diabetes, celiac disease, etc. The writer believes that of the two methods, the former is fundamentally sound since the nurse's interest centers about diseases and their cure.

It would seem less confusing if, in the teaching of nurses, the diet were correlated with the disease entity. This may not be true of other groups but it does seem particularly applicable to the nursing profession. As previously stated, illustrative material adds greatly to interest in the presentation of the subject matter. Food displays, models, posters, illustrations of various kinds, as well as stories, anecdotes, etc., may be used as a means of at least keeping the class awake. Questions and

class discussions are also useful means of avoiding monotony. At the end of each recitation period it is a wise procedure to clinch the important facts by giving a short summary and a brief review. Some may, however, prefer to review at the beginning of the next lesson.

Projects, problems, special assignments and case histories are means of placing responsibility for student performance. An example of the subject method is that of a group of students, who for one week lived upon the allowance given for a family on home relief, the students sharing in the responsibility for menu-planning, food preparation and serving.

If possible, trips to clinics, public health agencies, milk pasteurization plants or bakeries may not only add to the interest, but to the information and appreciation of the student. Attendance at medical lectures and conferences should be encouraged. The wise teacher will attend as many of these as possible, herself, in order to correlate her own work with other class material. There is no vocation where personality counts more largely than in that of teaching, none where there is greater necessity for being "alive" and sensitive to the reactions of others.

In conclusion, may I quote Everett Dean Martin (3) who, in speaking of education, says "It must be an adventurous quest for meaning and for that which is important, a disposition to think things through similar in spirit to that which once created classical education and gave it vitality."

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OPPORTUNITIES FOR NUTRITIONAL RESEARCH IN THE SOUTH[1]

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IN MANY respects the opportunities offered the research worker in nutrition in the South are the same as those offered elsewhere, except for the fact that there are a few problems particularly applicable to the South, and also that in some fields there has been less work done here.

There are foods used in the South that are not used to such a great extent in other parts of the country. Some of these foods are turnip greens, mustard greens, collards, "polk," okra, sweet potato, white corn, black-eyed peas, hominy, hominy grits, old country ham, and sorghum. There is a vast amount of work to be done on these foods and we in the South are the ones to do it. We could make a study of different methods of cooking these foods and find more ways of using them in the diet. We could study the variation in the nutritive value of different varieties of these foods, such as a comparison of the vitamin A values of different kinds of sweet potato. Some of the other foods also could be studied in this manner. Where this has not already been done the amounts of the important minerals in these foods could be determined. The units per gram of the different vitamins both for the raw and the cooked article could be worked out, and where a loss in the cooked food is found the source and amount of this loss should be determined. Some one could undertake a study of the uses of sorghum as a sweetening agent. The range in its acid content could be worked out and a standard could be determined for sorghum such as we have for cane sugar molasses and maple syrup, so that a more uniform product would be sold on the market.

Some of the cooking methods of the South differ to a degree from those used elsewhere; certain of these methods have been severely criticized as to the effect on flavor, digestibility, or loss of nutritive value, with little or no evidence upon which to justify these criticisms. It is our opportunity in the South to find out just how these cooking methods affect the foods. The effect of cooking some vegetables with salt pork, a common custom in many localities, could be determined. Is it better or worse or are there no important differences? Is cabbage cooked for

[1]Presented before the Tri-State Dietetic Association, February 16, 1935.

one to two hours with salt pork as quickly and easily digested as that cooked for one-half an hour or less with butter added at the end of the cooking period? The increase in energy value of some foods cooked in this manner has been determined as well as the fat absorption, which is less, but this work could be carried further and other factors such as the effect on digestion and the vitamin and mineral losses could be studied. To what extent is vitamin B_1 lost in string beans cooked with salt pork for two to four hours, the usual southern method? Is it present to as great an extent in turnip greens cooked with salt pork for two to four hours as it is in the raw product? The same procedure could be followed for cabbage and other vegetables cooked by this method. The loss of vitamin B_1 in the water during the cooking period has been determined for only a few vegetables, and a continuation of this study especially on southern foods could be done here as well as elsewhere. It has been fairly conclusively proved that the mineral loss of vegetables is determined by the amount of water left at the end of the cooking period, but there may be other factors such as acidity, etc., which affect it, so that more time could be profitably spent on this topic.

Buttermilk and sour milk, which are used much more in southern cookery than sweet milk, especially in rural areas where there is a lack of refrigeration, should be more fully investigated. This is being done at present to some extent and it is found that in plain cakes, breads, and biscuits, buttermilk with baking powder can be used instead of sweet milk with no practical difference in flavor or texture. Further work on the substitution of buttermilk for sweet milk in cooking should be investigated.

There is no doubt that hams that have been cured for one to three years, like those used in the South, are far superior in flavor to those that have been cured for a shorter period; but what other changes except that of added flavor have taken place? The digestibility as well as different methods of cooking should be investigated. We should try also to determine the factors that give the characteristic flavor so that a standard product could be produced.

The southern method of frying is neither sautéing nor deep fat frying. A skillet about half-full of fat is used. Some investigation on the effect of this southern method of frying should be done. The effect on digestibility, increased energy value or amount of fat absorption should be studied. A small amount of work has been done on this topic but it too could be studied further.

A comparison of the differences between the white and colored races in their nutritional problems would be an interesting study. The effects of the depression on the nutrition of the white as compared to that of the colored children; a comparison of the basal metabolic rates of both at all ages; dental caries and its relation to the diets; and the higher death rate in the colored race could all be studied. Is this higher death rate due to poorer diet and inferior living conditions, or is it racial? A comparison could be made of the incidence of pellagra in the two races. Has the amount of pigmentation in the skin any effect on the dermatitis found in pellagra? Is there any difference in the incidence of rickets, tuberculosis, anemia, and the deficiency diseases in the two races? If a difference is found, is it due to diet, environment, or is it racial?

The food habits of different sections of the South in relation to the diseases prevalent there, with special reference to pellagra and tuberculosis, should be studied, and demonstrations should be made of foods which could be produced economically in these localities to correct any of these defects. Some few studies have been made on the health of preschool children, both for white and colored, but this too should be carried on more extensively. This work should be followed up on school children, and methods of correcting any deficiencies should be found and applied. Supplementary diets of school children could be studied. A comparison could be made of the use of pork versus beef as a staple food. Tennessee could be used as an example of the former and Texas of the latter.

The utilization in the body of vitamins and minerals might profitably be done anywhere. So far we do not know just where in the body the vitamins are absorbed, or what per cent of the vitamins present in the food is utilized. To date, our experimentation has shown how much is available for use in the body rather than the extent to which the vitamin is present in the food. There is a definite relationship between the requirements of vitamins and other factors in the diet, such as fat, minerals, types of carbohydrate, and fiber. So far very little work has been done anywhere on this relationship. Probably more work on this subject would clear up problems such as those concerned with differences in requirements of vitamins on dissimilar diets.

We have a project being developed in the South that is quite unique. I refer to the Tennessee Valley Authority. Here the research worker in nutrition should have a wide range for her abilities. The government is backing her in her work. She has a chance to work on problems such as low cost adequate diets grown at home, eradication of all forms of

malnutrition now prevalent in many poorer communities in the South as well as elsewhere, relation between certain diseases and malnutrition, and effectiveness of local diets in curing and preventing diseases such as pellagra, tuberculosis, etc. She also has the opportunity to work on new methods of preparing foods.

We have as well, a great privilege that has been open to the whole of the United States, and that is a chance to help in the relief program. Mr. Harry Hopkins has asked all state administrators, to obtain from departments of home economics in state college, state agricultural extention services, and state home economics or dietetic associations the loan of a fully qualified food and nutrition specialist, "who has a working knowledge of the conditions throughout the state." What a chance for nutritionists! If they could all get together and pool their results what a wealth of practical and reliable information for any country to possess! We have had opportunities in the last few years which may never come again. During the depression, as at no other time, has the nutritionist been in demand. We have had a chance to offer our services to local emergency relief organizations, and if our services were refused or ignored at that time it was our duty or opportunity to offer them again. We stand on trial, and if we prove our practical ability now in these trying times the nutritionist has made a name for herself which can never be lost.

We can let organizations such as medical societies, public health associations, visiting nurses, child welfare societies, parent-teacher associations, and other groups interested in the welfare of the community know what we have to offer, so that they can come to us if they need our assistance. In any community, we can plan low cost diets and give demonstrations on how to use foods in low cost diets, plan household budgets with special emphasis on the food budget, give practical talks to social workers, parent-teacher associations, mothers' clubs, etc.

The tremendous toll that pellagra takes in the South makes it a vital problem. We know that lack of vitamin B_2 or G plays some part in its causation, but not all the factors concerned in the production of pellagra are known. A vast amount of research work needs to be done. A few pellagra surveys have been made, principally in South Carolina, but these should be duplicated in those states where the disease is endemic, and steps taken to combat it more effectively.

We already know the good effects of a diet optimum in all respects, on the deficiency diseases such as beriberi, scurvy and pellagra, but in Tennessee where tuberculosis is very prevalent a similar study might

well be made on the diet of the people, to determine just what rôle diet plays in its incidence and if certain deficient diets predispose to this disease. There are also other diseases where this procedure might be applied. We know that tuberculosis occurs in a large number of scorbutic individuals. Does vitamin C play an important rôle in the incidence of this disease? Yeast has been reported helpful by some investigators in some cases of tuberculosis, but the results of other workers conflict with these. Research should be carried out in the counties or states in which tuberculosis is most prevalent, to determine just what effect, if any, diet plays in the incidence of this disease.

These are only a few of the problems which we, in the South, have the opportunity to investigate. These suggestions have been given in the hope that they may be of some use in stimulating further research along these lines.

OBSERVATIONS ON FOOD ALLERGY[1]

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FOOD allergy introduces new problems which are concerned primarily with the reaction of individual patients to qualitative, rather than to quantitative, differences between foods. For example, lettuce and celery, or rice and oats may be used interchangeably in any diet except that of a person sensitive to one or more of these foods. Before proceeding with a discussion of these problems, however, it will be profitable to examine the meanings of the terms allergy and food allergy.

An excellent first impression of the terms allergy and hypersensitiveness, which are used synonomously, can be gained by carefully weighing each word of Coca's (1) definition: "Hypersensitiveness is that state in which an individual reacts *specifically* and with *characteristic symptoms* to .... a quantity of any substance *which to the majority .... is innocuous*." Consider, for example, the person who has hives after his first dish of the season's strawberries, but is otherwise perfectly well. His reaction is specific in that nothing but strawberries affect him. His symptoms are characteristic of those associated with hives, and not with asthma, eczema, or abdominal pain. This small quantity of strawberries is certainly innocuous to most people.

Asthma, hay fever, eczema, migraine, serum sickness and mucous colitis are some of the many other symptoms which characterize the reactions of hypersensitive individuals to normally harmless substances. These, with hives, are the outstanding allergic diseases.

The mechanism by which these supposedly harmless agents cause such a wide variety of symptoms, is a complex one. The more essential features, however, are presented in the diagram on page 223. It will be seen that the several facts necessary to a conception of this complex subject are: first, that the person affected must have the capacity or tendency (usually inherited) for becoming sensitive; second, that the agents which cause these disorders may be foods, inhalants, drugs, and bacterial products; third, that they reach the hypersensitive tissues directly by ingestion, inhalation, direct contact, or are carried to the

[1] From the Allergy Clinic, Department of Internal Medicine, University of Virginia Medical School.

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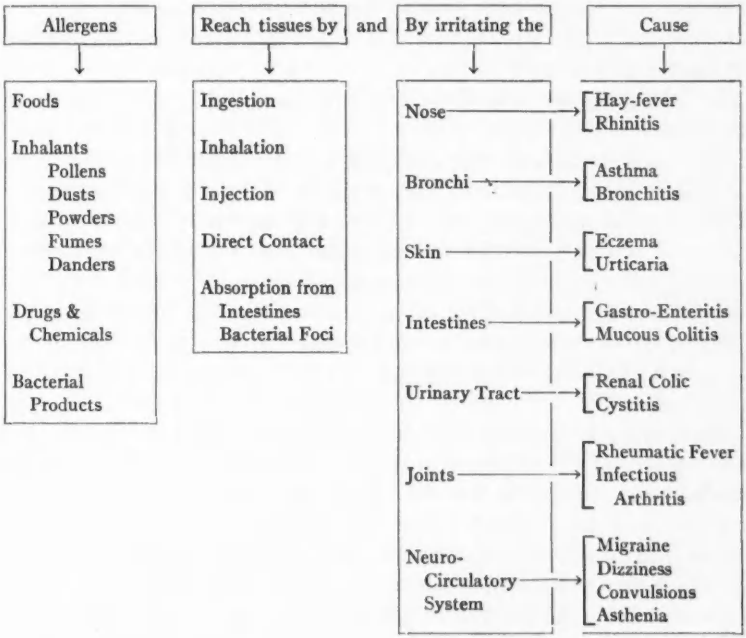
tissues by the blood which receives them by injection or absorption from the intestinal tract or a bacterial focus; fourth, that the contact between allergen and hypersensitive tissues results in irritation of these tissues; and fifth, that the symptoms depend on the site of the contact between allergen and hypersensitive tissue. For example, irritation in the nose causes hay-fever, in the bronchi, asthma, in the intestines,

MECHANISM BY WHICH ALLERGIC DISEASES ARE PRODUCED

Causative agents (allergens), how they reach the tissues and cause symptoms

Pre-requisite: Capacity for sensitization, usually inherited



mucous colitis, and so on for the skin, urinary tract, joints, and neuro-circulatory system.

The most important things to be learned from this brief review are that almost any part of the body can be affected by any of the causative agents, and that the differences between the various allergic manifestations are due solely to the anatomical differences between the points at which the allergens find sensitive tissue to irritate.

Food allergy is simply one phase of the general subject of allergy. It differs from inhalant, drug, or bacterial allergy only in so far as foods differ from inhalants, bacteria, and drugs. The symptoms are the same. There are many practical points about food allergy which can now be mentioned profitably.

What foods cause symptoms? Any food can cause any allergic symptom. The relatively continuous or frequently recurring manifestations are usually due to the commoner foods. In fact, milk, eggs, wheat and other cereals, citrous fruits, chocolate, tomatoes, leguminous foods, and potatoes are responsible for about 75 per cent of all food allergies. On the other hand, the occasional or rare manifestation of food allergy is likely to be due to some unusual food such as lobster, berries, fish roe, or imported cheese.

How much of any food does it take to produce symptoms? The amount required is an individual matter. Some children are so sensitive to egg that a mere taste of cake will produce violent cramps, asthma, hives, or other allergic symptoms. Others are so slightly sensitive that they have no symptoms unless two or three eggs are eaten daily for several days. The lesson to be learned from this is that until the tolerance of the allergic individual for any suspected food is determined, he should not have the minutest part of it. "Just that little taste" of wheat flour in gravy, or egg in mayonnaise, may cause a violent prolonged attack of either asthma, migraine, mucous colitis, or other characteristic symptoms.

How soon and how long after eating a food may one expect a reaction to it? Some patients will have irritation of their mouths while chewing foods to which they are sensitive, others will not be troubled for from 5 to 24, or even 36 hours. Still others may eat a food several days before reacting to it. The immediate or prompt reactions are often recognized by the patients, while the delayed reactions are so obscure that only the most carefully controlled study of the diet will permit recognition of their cause.

How long do reactions to foods last? Those which produce immediate reactions may last only a few moments, whereas delayed reactions and even some of the prompt ones often last 5 to 7 days, or occasionally longer.

How much attention should be paid to whims of people whose tastes are finicky? Every such instance is an individual and vexing problem. Certainly, a very large number of food dislikes are protective. The child who will not drink milk may well be sensitive to it. If so, milk

should be avoided. One of the hardest problems that the allergist has to contend with is the prevalent fetish that children cannot be nourished adequately without milk, eggs, and wheat. They are extraordinarily good foods as a rule—but what could be less logical and more pitiful than the case of the milk-sensitive child who wheezes or scratches violently every day, or who is obstinately constipated because his mother "didn't want to take him off milk because it is so good for him?" This should not be interpreted as advice to accept every whim of every child as evidence of food allergy. It is simply a plea to remember that strong food dislikes are not to be disregarded without investigation. As a matter of fact, a very large percentage of all allergic patients will admit to a number of such dislikes.

Are all food idiosyncracies evidences of food allergy? The intestinal tract is influenced by disturbances in almost any part of the body. Heart failure, too little hydrochloric acid and pepsin in the stomach, chronic nephritis, cirrhosis of the liver, unusual fatigue, emotional strains, gall-bladder disease, anemias, focal infections and many other conditions are characterized by various forms of food intolerance which are not to be considered food allergy.

How many foods can a person be sensitive to? There is no set rule, from one to twenty or more. Vaughan (2) has made the interesting and highly practical observation that patients frequently tend to become sensitive to foods which are biologically related, such as cereals, legumes, the cabbage family, meats, fowl, citrus fruits, etc. He noted that complete elimination from the diet of a given biological family may be necessary. Strangely enough, some people seem to be sensitive to various food combinations but not to the individual members of the combination, when eaten separately.

How is food allergy recognized? The most important thing is to know when to suspect it. It should certainly be suspected when the patient has one of the above mentioned allergic diseases (*i.e.* asthma, hay fever, migraine, eczema, mucous colitis, urticaria, angioneurotic edema). It should also be suspected in any digestive dysfunction which is not obviously due to some other local or distant cause. A careful history, analyzing the patient's reactions to *each* of the foods in his dietary, will yield information just as valuable and reliable as that obtained in any other way. Having suspected food allergy and taken a detailed food history, the patient should be tested for his skin reaction to all of the foods he uses. Unfortunately, a prevalent misconception has arisen that the diagnosis of the cause of allergic manifestations is synonymous

with skin testing. Nothing could be more unfortunate for the allergic patient. The skin test is very valuable, in fact, indispensable, but it solves no more than 50 per cent to 60 per cent of the solvable problems of food allergy. The skin test is simply a diagnostic aid. Positive skin tests do not mean that the patient is having symptoms from the food to which he reacts. Nor do negative skin reactions mean that the patient is not having symptoms from the foods with which he was tested. Positive tests must always be verified, clinically, by removing the food from the diet. If the symptoms are relieved and return *only* when the food is resumed, the case is proved. If as often happens, symptoms are not relieved by avoiding foods to which the skin reacts, the avoidance need not be continued, particularly if the food is a convenient or integral part of the usual diet.

If, as happens in from one-third to one-half of the cases of food allergy, the history and skin tests do not eventuate in the relief of symptoms, so-called "elimination diets" are tried. Ideal elimination diets are composed of foods which have been shown to be unusual causes of food allergy, and at the same time contain adequate bulk, calories, protein, vitamins and minerals, so that the patient can continue his usual daily routine. There are many possible modifications of the principle of elimination diets. Rowe (3), and to a lesser extent Dale and Thornburg (4), have studied this problem so extensively that perfectly adequate trial diets with menus and recipes can be copied directly from their reports.

How can the dietitian coöperate in the management of food allergy? There are three chief reasons for failure in the treatment of food allergy. One is that the patient becomes decidedly bored and rebels at the limited menus he gets at home or in the hospital, particularly when milk, eggs and wheat must be omitted. Sufficiently varied and appetizing dishes, within such strict limitations, can be concocted only by a dietitian. Another difficulty is that the patient thinks he cannot get adequate nutrition, within the restrictions imposed by the diet, because he is boarding or travelling. The dietition can, by providing emergency menus, help the physician convince the patient that it is much better to have an occasional scanty meal than to eat a reactive food, especially during the diagnostic periods of two or three weeks. The third difficulty is that forbidden foods are innocently brought into the diet. It behooves, not only the dietitian, but also the physician and patient, to learn the entire composition of every dish in which forbidden foods may occur. Milk, eggs, wheat, tomatoes, shortenings and flavorings are those most

commonly disguised when they appear in the final cooked or prepared dish. Every dietitian should know where any forbidden foods are likely to be found and how to substitute for these ingredients by the use of an entirely different food, rather than one in the same biological family. Most of these problems are anticipated by Rowe (2) in *Food Allergy* which contains Vaughan's (3) genetic classification of foods.

How can food allergy be treated? Avoidance is the most effective treatment. Limited tolerance can be obtained sometimes by beginning with sub-reacting amounts of the food in question, and gradually increasing the daily quota to an amount greater than any chance intake. Tolerance may be achieved occasionally by injecting extracts of the offending food.

How long must offending foods be avoided? This can be determined only by individual trial. It is safe to say that a person who is clearly sensitive to a food should avoid it for at least a year before trying it, carefully, again. It has been shown, however, that there is a distinct tendency to become less sensitive with prolonged avoidance.

The several points which have served as the theme for these observations are: Food allergy has increased the scope of the field of dietetics. It has done so by the introduction of a need for detailed knowledge of new qualitative differences between foods. This need arose from the demonstration that certain people were made ill by certain foods, and that in a large group any food could cause almost any symptom. This was further complicated by the fact that a person who reacted to one food was likely to react in some degree to other foods from the same biological family. Statistically, the most commonly used foods produce symptoms far more frequently than the rarer foods. These things have made it necessary for the competent dietitian to learn to supply attractive and adequate menus from which any or all of the plainer foods, such as milk, eggs, grain products, legumes, tomatoes, citrus fruits, chocolate, etc., are excluded, or from which any group of biologically related foods must be omitted. The mechanism by which foods may cause symptoms is reviewed briefly and illustrated diagrammatically.

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A LOW CALORIE KETOGENIC DIET[1]

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A NEW interest in the ketogenic diet has been aroused because of the recently discovered value of ketonuria in the treatment of urinary infections.

In feeding the usual ketogenic diet, a difficulty frequently encountered is the patient's dislike for the large quantities of fat which must be taken with the very small amounts of other foods allowed. Since short periods of underfeeding apparently do no real damage to the organism, it was suggested that a diet low in available glucose, with protein to meet the normal requirement and just enough fat to make the diet palatable, would be as efficient as the high fat diet in producing ketosis; the diet would have the added advantage of being more palatable and consequently easier for the patient to take. This plan has proved effective. The resulting weight loss is of little consequence to the patient of normal weight, and an advantage to the obese. In the underweight patient, a marked loss of weight may be avoided by using the usual high fat diet, or his weight may be restored when he resumes his regular diet. The duration of this regime is usually not longer than two weeks.

Experience has shown that a fatty acid/glucose ratio of 4:1, or higher, is necessary to produce a desirable ketosis. An example will best explain how this ratio may be produced. An individual whose ideal weight is 130 pounds, or 59 kilos, needs approximately 2060 calories (35 calories per kilogram) in the 24 hours. Allowing 39 grams of protein ($\frac{2}{3}$ gram per kilo) it is necessary to use 203 grams of fat and 18 grams of carbohydrate to furnish the necessary calories and at the same time give a fatty acid/glucose ratio of 4:1 or higher.

$$\frac{\text{Fatty acid}}{\text{Glucose}} = \frac{\text{50\% of protein} + \text{90\% of fat}}{\text{50\% of protein} + \text{5\% of fat} + \text{100\% of carbohydrate}}$$

or

$$\frac{20 + 182}{20 + 10 + 18} = \frac{202}{48} \text{ or } 4\tfrac{1}{2}$$

A diet may be fed to furnish this combination of food. Such a diet is the usual high fat, ketogenic diet, which results in ketosis, but which may be

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difficult for the patient to take because of the large amounts of rich cream and butter necessary.

In the low calorie diet this same individual is fed 39 grams of protein and 18 grams of carbohydrate. Together these will furnish 228 calories $(39 + 18) \times 4$. The remainder of the 2060 estimated calories must be made up by food fat or fat from his own body. Since one gram of fat furnishes 9 calories, it will require the use of 203 grams of fat to make up the 1830 calories $\frac{(2060 - 228)}{9}$. The resulting mixture actually metabolized is protein 39 grams, fat 203 grams and carbohydrate 18 grams, the same as the high fat diet described above. The diet fed will consist of 39 grams of protein and 18 grams of carbohydrate, with the fat which occurs in the foods and additional butter or salad oil in amounts desired by the patient to make his food palatable. Due to its high yield of available glucose, cream cannot be added *ad libitum* to the above diet because it reduces the fatty acid/glucose ratio.

Each diet is calculated for the individual patient, care being taken to underfeed rather than overfeed him, since the addition of calories above the body need will result in a storage of fat with no increase in ketosis. The available glucose of the metabolic mixture must be kept low enough to give the desired ratio with the fat metabolized, regardless of the amount of fat fed. Such an error in administering this diet may be illustrated by the following example. Suppose that a patient, requiring only 1600 calories, is fed the above diet (protein 39, fat 203, carbohydrate 18) which furnishes 2060 calories. He actually needs and uses only 1600 calories, storing the surplus 460 calories or 51 grams of fat. The mixture he is metabolizing is protein 39, fat 152, carbohydrate 18, with a resulting fatty acid/glucose ratio of 3.5, which probably will not produce ketosis. Any further addition of fat will be useless, since the patient is already overfed and will not use the surplus, except for storage.

In planning a diet, it is necessary to know the height and weight of the patient. For the obese patient, the average weight for his height, rather than his actual weight, is used as the basis for calculation. The underweight patient is fed on the basis of his actual weight, since the estimated energy requirement for his desirable weight would probably be above his actual expenditure.

With the weight factor established, caloric expenditure is estimated at 35 calories per kilo of this weight. To satisfy the protein requirement, $\frac{2}{3}$ of a gram per kilo of body weight is allowed. With the addition of $\frac{3}{10}$ of a gram of carbohydrate (an empirical figure) per kilo, and fat to

make up the remaining calories of the estimated number, a FA/G ratio of 4:2 or 4:3 is secured. To illustrate, a woman 5 feet 6 inches tall weights 160 pounds. The average weight for her height is 138 pounds, approximately 140 pounds, or 64 kilos. Her allowance of protein will be 43 grams ($\frac{2}{3}$ of 64). Her estimated caloric requirement is 2240 calories (64 × 35). Her carbohydrate allowance is 19 grams (0.3 × 64). The protein and carbohydrate, together, will furnish 248 calories (43

TABLE 1

DIET				ESTIMATION OF MIXTURE METABOLIZED				
Body weight		Prot. gms. (2/3 gm. per kilo)	Carbo. gms. (0.3 gm. per kilo)	Calories (35 per kilo)	Fat, gms.	Fatty acid	Avail. glucose	FA/G
Lbs.	kilos							
60	27	18	8	945	93	93	22	4.2
65	29	20	9	1015	100	100	24	4.2
70	32	21	10	1120	111	110	26	4.2
75	34	23	10	1190	118	118	27	4.3
80	36	24	11	1260	124	124	29	4.3
85	39	26	12	1365	134	134	32	4.2
90	41	27	12	1435	142	141	33	4.3
95	43	29	13	1505	148	148	35	4.2
100	45	30	14	1575	155	154	37	4.2
105	48	32	14	1680	167	166	38	4.1
110	50	33	15	1750	173	172	40	4.3
115	52	35	16	1820	180	180	42	4.3
120	54	36	16	1890	187	187	43	4.3
125	57	38	17	1995	196	195	46	4.2
130	59	39	18	2060	203	202	48	4.2
135	61	41	18	2135	211	210	49	4.3
140	64	43	19	2240	222	221	52	4.3
145	66	44	20	2310	228	227	53	4.3
150	68	45	20	2380	235	234	54	4.3
155	70	47	21	2450	242	241	57	4.2
160	73	49	22	2555	252	251	59	4.3

+ 19) × 4, leaving 1992 calories to be made up by 222 grams of fat (1992 ÷ 9). The resulting mixture, protein 43 grams, fat 222 grams, carbohydrate 19 grams, furnishes 221 grams of fatty acid and 52 grams of glucose with a ratio of 4:3 to 1.

In Table 1, columns three and four state in grams the protein and carbohydrate to be given in the diet to patients of various weights, to produce ketosis as described above. The remainder of the table is an estimation of the food mixture theoretically metabolized to furnish the

energy required, the fat to come from either exogenous or endogenous sources.

The next step is the planning of a food combination which will furnish the desired protein and carbohydrate, with enough fat to make the diet palatable, leaving the patient to make up any deficit in calories from his own body fat. In the diet plan, protein is furnished by eggs and bacon; fat, by cream and butter; and carbohydrate, by 5 per cent vegetables or fruits. By simple substitution of meat or cheese for eggs, mayonnaise for part of the butter, and the use of specific vegetables and fruits, either cooked or raw, a palatable diet with some variety may be given.

TABLE 2

Food values used in diet calculation

FOOD	WT. GMS.	PROT.	FAT	CARBO.	CALS.	AVAIL. GLUCOSE
5% vegetable or fruit	100	1.0		5.0	24	5.50
Bacon, cooked	10	1.6	5.0		51	1.07
Butter or mayonnaise (see recipe)	10	0.1	8.5		77	.48
Cream, 20% (coffee)	100	2.9	20.0	4.0	208	6.45
Cream, 32% (whipping)	100	2.4	32.0	3.5	312	6.30
Cream, 40%	100	2.2	40.0		381	6.10
Egg (1)		6.7	5.2		74	3.61

By the use of the values given in Table 2, the following combination serves to give the desired diet:

		PROT.	FAT	CARBO.	CALORIES	AVAIL. GLUCOSE
Eggs	5	33.5	26.0		370	18.05
Bacon, cooked	30 gms.	5.0	15.0		155	3.25
5% vegetable	350 gms.	3.5		17.5	84	19.25
40% cream	50 gms.	1.1	20.0	1.5	190	3.05
Butter	30 gms.	0.3	25.5		231	1.42
Totals		43.4	86.5	19.0	1030	45.02

This may be divided into three meals, thus:

Morning	*Noon*	*Evening*
Egg 1	Eggs 2	Same as noon
Bacon 30 gms.	5% Vegetable 130 gms.	
5% Fruit 90 gms.	40% Cream 10 gms.	
40% Cream 30 gms.	Butter 10 gms.	
Butter 10 gms.		

With this plan as a guide, and selecting vegetables and fruits from the lists provided in Table 3, the actual menu is planned. Ten per cent vegetable or fruit may be substituted, if desired, by using half the quantity of five per cent allowed. Thirty grams of meat, fish, or cheese may be used in place of one egg when desired. Butter and mayonnaise (see recipe) may be used in any quantity desired. Washed bran wafers, agar jelly, vinegar, tea, coffee, and saccharin may be used *ad libitum*. If cream other than 40 per cent is substituted, the same amount is used

TABLE 3

Classification of fruits and vegetables according to carbohydrate content

5 PER CENT VEGETABLES		5 PER CENT FRUITS	10 PER CENT VEGETABLES	10 PER CENT FRUITS
Asparagus	Kohlrabi	Honey dew melon	Beets	Blackberries
Bean sprouts	Lettuce	Lemon juice	Brussel sprouts	Cranberries
Brocoli	Okra	Muskmelon	Carrots	Currants
Cabbage	Peppers	Rhubarb	Dandelion greens	Gooseberries
Cauliflower	Pumpkin	Strawberries	Leeks	Grapefruit
Celery	Radish	Watermelon	Olives, green	Lime juice
Chard	Spinach		Onions	Oranges
Chinese cabbage	String beans		Rutabagas	Orange juice
Cucumber	Summer squash		Winter squash	Peaches
Egg plant	Tomatoes			Tangerines
Endive	Turnips			
Greens, beet or mustard	Watercress			

since the yield of available glucose is approximately the same. The following menus are planned from the above outline.

Menu I

Bacon, cooked..... 30 gms.	Roast pork..... 60 gms.	Salad
Fried egg..... 1	Lettuce and tomato salad..... 80 gms.	Tunafish..... 30 gms.
Tomato juice..... 90 gms.	Mayonnaise** as desired	Hard-cooked egg 1
40% cream..... 30 gms.	Strawberries..... 50 gms.	Lettuce and celery.....130 gms.
Washed bran wafer*	40% cream..... 10 gms.	Mayonnaise
Butter as desired	Bran wafer	40% cream..... 10 gms.
Coffee	Butter	Bran wafer
Saccharin	Tea	Butter
	Saccharin	Tea
		Saccharin

* *Bran wafers* (no food value). Boil 12 grams of agar with 2 cups of water. Add 3 cups of *washed* (starch-free) bran and 1 teaspoon salt. Press flat in pan, cut into squares, dry over night, bake until brown and crisp.

***Mayonnaise Dressing:* 1 egg, 2 cups salad oil, 2 tb. vinegar, 1 tsp. salt, 1 tsp. mustard, ½ tsp. paprika.

Menu II

Bacon, cooked..... 30 gms.	Roast veal..... 60 gms.	Cottage cheese... 30 gms.
Scrambled eggs.... 1	Carrots..... 65 gms.	Lettuce and asparagus salad... 90 gms.
Butter..... 10 gms.	40% cream..... 10 gms.	Mayonnaise
Orange..... 45 gms.	Butter	40% cream..... 10 gms.
40% cream..... 30 gms.		Rhubarb..... 40 gms.
		Butter

Menu III

Bacon, cooked..... 30 gms.	Pork chop..... 60 gms.	Cold sliced meat.. 60 gms.
Poached egg..... 1	Shredded cabbage salad..... 50 gms.	Celery hearts..... 30 gms.
Grapefruit..... 45 gms.	Stewed tomatoes.. 80 gms.	Wax beans.....100 gms.
40% cream..... 30 gms.	40% cream..... 10 gms.	Cream..... 10 gms.
	Mayonnaise	Butter
	Butter	

A weighed diet is the most satisfactory arrangement for this regime, but the food may be measured if weighing is impossible. Table 4 gives approximate measurements which may be used in planning such a diet.

TABLE 4

Equivalents for measuring foods, using standard measuring cup or spoon

100 grams = ½ cupful cooked vegetables or fruit or ⅔ cupful raw
5 grams = 1 teaspoonful of butter, cream, or mayonnaise
15 grams = 1 tablespoonful " " "
10 grams cooked bacon = 3 thin strips, 3 inches long

Chewing tobacco and gum are prohibited. Care should be exercised not to swallow tooth paste or mouth washes which might contain sugar. For the same reason, cathartics other than liquid petrolatum or bitter cascara should not be used, since a sweet cathartic or other medication may furnish sugar enough to cause failure of the diet. If the patient becomes nauseated as the ketosis develops, it will do no harm to omit a meal or two, or he may have a small glass of tomato juice, half an orange, or a glass of sour lemonade. In using this diet in the treatment of urinary infections, large amounts of fluid and consequently excess dilution of the urine are contraindicated.

Table 5 is a collection of diets calculated for individuals of various body weights, with statements of the amounts of protein, fat, carbohydrate, calories, and available glucose furnished by each diet.

TABLE 5

BODY WEIGHT, LBS.	100	110	120	130	140	150	160
Calculated protein	30	33	36	39	43	45	49
Calculated carbohydrate	14	15	16	18	19	20	22
Actual totals of diet fed:							
Protein	30.7	34.2	37.7	39.7	43.4	45.3	48.9
Fat	66.3	76.3	71.5	76.5	86.5	76.7	86.7
Carbohydrate	14.0	15.0	15.5	17.5	19.0	20.0	21.5
Total calories	777	887	858	919	1030	954	1066
Available glucose	32.66	35.91	37.92	41.19	45.02	46.48	50.28
Total food for day:							
Eggs	4	4	5	5	5	6	6
Bacon		20		10	30		20
5% vegetable, *gms*	250	270	280	320	350	370	400
40% cream, *gms*	50	50	50	50	50	50	50
Butter, *gms*	30	30	30	30	30	30	30
Suggested meals:							
Breakfast:							
Eggs	1	1	1	1	1	2	2
Bacon		20		10	30		20
5% vegetable	90	70	80	120	90	130	100
40% cream	30	30	30	30	30	30	30
Butter	10	10	10	10	10	10	10
Available glucose	10.87	11.92	10.32	13.59	14.09	16.68	17.18
Dinner:							
Eggs	2	2	2	2	2	2	2
5% vegetable	80	100	100	100	130	120	150
40% cream	10	10	10	10	10	10	10
Butter	10	10	10	10	10	10	10
Available glucose	12.71	13.81	13.81	13.81	15.46	14.91	16.56
Supper:							
Eggs	1	1	Same as	Same as	Same as	Same as	Same as
5% vegetable	80	100	dinner	dinner	dinner	dinner	dinner
40% cream	10	10					
Butter	10	10					
Available glucose	9.10	10.20					

EDITORIAL

"Nutrition and the Future of Man"

The presidential address of Dr. James S. McLester[1] at the eighty-sixth Annual Session of the American Medical Association in Atlantic City was the high point among the many papers pertaining to the science of nutrition there presented. Can man, by giving thought to the food he eats, influence the destiny of his race? Dr. McLester sees a basis for this belief. He points to the early work of Osborne and Mendel who were able to show that what had previously been regarded as normal weight for the albino rat was not a fixed figure, but was subject to material increase with improved nutritive conditions. Such changes were not limited merely to increase in bulk, but included concomitant improvement in all phases of physical growth. It would appear that through consistent attention to the animal's nutrition, during successive generations, there has been developed a new species of albino rat.

Is increased rate and extent of growth to be regarded as wholly favorable? McCay[2] has pointed out that what he regards as forced development, is not compatible with longevity. Another worry has occurred to Alvarez[3], as it may have to others. He cautions against the "stuffing" of "already oversized children of oversized parents." Pullman berths will not hold these boys, grown to adulthood. And what is to become of the out-size girls—"their chances of marrying are diminished." Do we want to "go on producing huge men and, particularly huge women?" Alvarez seems to favor more a *laissez passer* policy on the part of the nutrition enthusiast.

In contrast with this dark picture, McLester paints one illumined by the experience of Sherman[4] who has observed that when an apparently adequate diet is enriched in certain of its chemical factors by an increase in the proportion of milk, there results not only an increase in the rate of growth, but also an improvement in vitality and in the animal's length of life. McLester believes that the preponderance of evidence is in favor of the theory that increased growth, "achieved by well considered improvement" in the diet, is accompanied by general physiologic betterment and definite improvement of the species.

While changes due to improved living conditions have not been so

[1] J. A. M. A. 104: 2144, June 15, 1935.
[2] Science 77: 410, April 28, 1933.
[3] Am. J. Digest. Dis. and Nutrition 2: 128, April, 1935.
[4] Food and Health, New York: The Macmillan Company, 1934.

graphic in man as in the lower animals, they are none the less significant. McLester cites the work of Appleton[5], Kanzaki[6], Todd[7], and that of Mann, among others, which indicates that improvement in a diet, previously considered adequate, will often result not only in larger stature and higher degree of development, but greater physical efficiency as well. "Adequate" and "optimum" seldom have a synonymous connotation in nutrition.

McLester sanely appraises heredity and environment as both combining to shape man's destiny. Yet inherited details of structure and other physical attributes may be profoundly altered by environment. Through environment, man's period of usefulness may be greatly extended. This is in line with recent views expressed by Sherman.

How may we bring mankind to a higher level of physical development? American people are "acutely food conscious." In order that people may get the foods they need, within the means at their disposal, they need the help of the teacher, the physician, the publicist, the economist and the law maker. Education comes first, by means, for example, of nutrition classes in schools, or through the physician who is now taking an "infinitely greater interest in the science of nutrition than he has in the past." He must know something as well of the economics and distribution of food, in this day of rigidly restricted budgets. Food tabus and customs of a family or race may deflect the purpose of the educator. If grievously at fault, these may possibly be accompanied by gradual deterioration of the family or race.

To elevate racial standards, we must give due attention to political and economic factors. There may be something like twenty million people in this country who are living near or below the threshold of nutritive safety. Unless there is a better balance between income and price of food, the health of the race will surely be affected.

Science, which in the past, through advances in medical knowledge of the control of disease, has conferred immeasurable benefits to mankind, now promises by means of the newer knowledge of nutrition, "a larger stature, greater vigor, increased longevity and a higher degree of cultural attainment."

[5] China M. J. 40: 259, March, 1926.
[6] Ann. A. Acad. Polit. and Soc. Sc. 93: 88, 1921.
[7] Science 81: 259, March 15, 1935.

Opportunities for Coöperation between the Medical and Dietetic Professions[1]

Although the layman may suppose that the practice of dietetics is chiefly focussed on solving the problems of digestion, there is, on the other hand, hardly a branch of medicine which has not called freely on the dietitian, according to Dr. Douglas. These interlocking points between medicine and dietetics include the ketogenic diet in epilepsy, the pediatrician's and the lung expert's dietary problem in tuberculosis, the dermatologist's problem of food allergy, the obstetrician's call for proper prenatal diets and the internist's ever present problem of diabetic management. As well as these and other aspects of the therapeutic side of dietetics, it is necessary to keep in mind the rôle played by dietetics in preventive medicine, the application of dietetics in health.

In order to reap the richest benefits in this application of dietetics in health, dietitians, public health workers and physicians must coöperate to the fullest in the research laboratory and in practice. A recent example of this coöperation is the White House Conference on Child Health and Protection, upon whose committee for the study of growth and development were several professors of nutrition. The result of their coöperation with many pediatricians and biochemists is a clear report on the nutritional requirements of the child, and the practical ways of meeting them.

It is the obligation of the medical and dietetic professions to educate the lay public in such matters through everyday contact—newspaper articles, radio broadcasts, and thorough instruction in hospitals, welfare centers and schools. A historical example of the manner in which the physician and dietitian may coöperate in education of the people along these lines concerns Dr. Joseph Goldberger. He went to the trustees of the orphanages in Mississippi, where pellagra was so widespread in 1915, and asked them: "Would you object to feeding fresh meat and plenty of fresh milk to all of your children here, if the government, the United States Public Health Service, pays for it?" They agreed, and the money invested in good protein food resulted in the prevention of pellagra among all the orphans.

Great as is the work of the United States Public Health Service along lines of fighting "hidden hunger," as de Kruif terms it, there are still

[1] Abstract of paper by Dr. Beverly Douglas, presented before the Tri-State Dietetic Association, Nashville, Tennessee, February 16, 1935.

many fields, both preventive and curative, in which the private physician and the dietitian must coöperate to the fullest extent.

A modern example is found in the project of Mr. Frank Alexander and Dr. Henry Meleney of Vanderbilt University. These workers made a study last year of diets in two rural communities in west Tennessee. They had in mind the shedding of light on the relation of diet to amebiasis which was prevalent in the two communities. They discovered that the rations on the whole were very poorly balanced and lacking in vitamins, especially D. Corn meal was depended upon for 22.1 per cent of the total calories in one community, and 33.6 per cent in the other, while fresh fruits and vegetables were sadly lacking in the diet of one. They state that the monotony of the diets of many of the households in these two communities is an unnecessary condition which should be remedied. Their investigation awakened interest in one of the counties to the extent that the county home demonstration agent was asked to start a class among the women of the community. The problem of improving the diets of a community must be approached with great patience, since it is obvious that the eating habits of a community cannot be changed in a brief span of time.

Besides hygienic and preventive measures concerned with the nutritional welfare of the people at large, Dr. Douglas believes that there are specific opportunities and obligations for the physician and dietitian to work together in the treatment of disease. These are many—in medicine, in surgery and in the specialties. The medical man should not fail to call for the services of a dietitian when needed.

Dr. John B. Youmans, associate professor of medicine at Vanderbilt University, and his co-workers have spent much time on the problem of endemic nutritional edema in Nashville. Endemic nutritional edema may be defined as a state of undernutrition caused by an inadequate supply of protein, and associated with lowered serum protein values and edema. It is present throughout the year, but, to quote Dr. Youmans, "has shown a seasonal variation in incidence, the majority of cases appearing in the late winter, spring and early summer." Anemia, lack of mental and bodily vigor, of energy and ambition are associated with this condition.

In attacking the problem at Vanderbilt University, social workers obtained a record of exact diets of a large number of these patients who were visited at their homes. From these records the total calories, total protein, animal protein, fat and carbohydrates were calculated. The calculations were made by Mrs. Stow and Miss Winckler, directors of

dietetics at Vanderbilt University Hospital. The diets were found to be decidedly deficient in total calorie and protein intake, and the total serum protein of the blood was found to be low. Diets were then prescribed in which the protein deficiency was corrected and the total caloric intake increased. Dietitians taught the patients how to prepare these diets at home. As a result, in most cases the total serum protein tended to rise gradually and there was a decrease or disappearance of the edema.

In two cases studied in the hospital the nitrogen balance showed a retention of nitrogen on an increased protein intake. Dr. Youmans concludes that the remedy for nutritional edema is to be found in paying more attention to "diet in public health education." People must be taught what constitutes a proper diet and how to prepare it tastefully.

Thus, intimate coöperation between the physician and dietitian may serve not only to manage or cure known diseases, but, through careful research, may make it possible to discover causes of obscure diseases and educate the public to correct the dietary deficiencies responsible.

CURRENT COMMENT

The Effect of a Supplementary Rest Period Luncheon on Industrial Absenteeism[1]

We report here the second[2] of a series of studies designed to determine the effect of a definite type of dietary supplement during rest periods on the weight, absence record, and industrial efficiency of women workers in an industrial plant. Bananas have been shown to be a good source of vitamin A.[3] Sugiura and Benedict[4] reported a combination of bananas and milk to represent a nearly completely balanced diet, and milk is also a good source of vitamin A. Since the first series of studies using cod liver oil as a supplement effected both reduction in colds and absence from illness, bananas and milk offered a means of measuring the effect of increased intake of vitamin A obtained from natural food sources.

We therefore conducted two series of tests (the first of five weeks' duration, the second, eight weeks') which consisted of giving groups of

[1] The expenses of this research were contributed by the United Fruit Company and the Eastman Kodak Company.

[2] Holmes, A. D., Pigott, M. G., Sawyer, W. A., Comstock, L.: J. Am. Dietet. A. 10: 208, 1934.

[3] Eddy, W. H. and Kellogg, M.: Am. J. Pub. Health 17: 31, 1927.

[4] Sugiura, K. and Benedict, S. R.: J. Biol. Chem. 40: 449, 1919.

volunteers a supplementary lunch of one banana and a half-pint of milk at each of two rest periods, daily.

A. Effect on Weight Control. Bananas and milk contribute the nutrients shown in Table I. Some of the subjects anticipated undue weight increase from this supplement, so particular attention was paid to the weight changes during the test.

In the first series of tests conducted between May 7, 1931, and June 11, 1931, two groups of women participated, while a third group on an

TABLE I

The nutrient factors in two average bananas and one pint of Grade A milk

FACTORS	IN 2 BANANAS	IN 1 PINT MILK	TOTAL
Weight as purchased	300 gms.	476 gms.	776 gms.
Skin and refuse	105 gms.	none	105 gms.
Edible material	195 gms.	476 gms.	671 gms.
Water	147 gms.	420 gms.	567 gms.
Protein	2.5 gms.	14.3 gms.	16.8 gms.
Fat	1.2 gms.	17.1 gms.	18.3 gms.
Carbohydrate	43.0 gms.	21.4 gms.	64.4 gms.
Ash	1.6 gms.	3.2 gms.	4.8 gms.
Calories	193	297	490
Vitamin A[1]	488 units	1105 units	1593 units
Vitamin B[2]	32 units	60 units	100 units
Vitamin C[3]	39 units	17 units	56 units
Vitamin G[4]	65 units	357 units	422 units
Vitamin D	absent	absent	none
Vitamin E	present	present	present

[1] Vitamin A in Sherman or A. D. M. A. units.

[2] Vitamin B in Sherman-Chase units.

[3] Vitamin C in Sherman-La Mer units.

[4] Vitamin G in Sherman-Bourquin units.

N.B. 1593 A. D. M. A. units of vitamin A is equivalent to 2230 International units or 3.7 gms. of U. S. P. cod liver oil (about 1 teaspoon). In the first series (1), one *tablespoon* of a cod liver oil assayed to contain more than 1400 Int. units per gram, *i.e.* a total of 16800 Int. units per day, was used as a supplement to the diet.

unsupplemented diet was chosen for comparison. Group I received a daily supplement of two bananas and one pint of milk. Group II received two bananas, daily, but no milk. No attempt was made to control the home or lunch diets of the participants. In Group I there were 25 subjects, some definitely under-weight, a few about ideal weight[5], and a few over-weight; in Group II, 10 were similarly divided, while Group

[5] Dr. Emerson's weight tables given in his "Diagnosis of Health" were used as standard. The average of the "range" was used as the "ideal" weight.

III, controls, consisted of 14 subjects. This experiment was repeated between May 1, 1932 and June 25, 1932, with a larger series of women. Results are shown in Table II.

The average gain or loss per week in the banana groups indicates that the supplementary diets could not be classed as "fattening." If any benefit in weight control occurred, perhaps it was due to a better regulation of digestive processes, rather than to a fattening effect. These comparisons show that fears of excessive fattening on such a supplementary diet are groundless.

TABLE II

Effect of banana and milk on weight control

GROUP	SUPPLEMENT	TOTAL UNDER WEIGHT	CHANGED TOWARD IDEAL WEIGHT	CHANGED FROM IDEAL WEIGHT	PER CENT BENEFITED	TOTAL OVER WEIGHT	CHANGED TOWARD IDEAL WEIGHT	FROM IDEAL WEIGHT	PER CENT BENEFITED
Series I. May 7 to June 11, 1931									
I	Banana and milk	21	16	5	76%	4	2	2	50%
II	Banana only	5	3	1	60%	5	2	3	40%
III	No banana or milk	7	4	1	57%	6	3	3	50%
Series II. May 1 to June 25, 1932									
I	Banana and milk	56	25	26	44%	19	10	7	52%
II	Banana only	12	2	7	16%	14	3	7	21%

Average gain or loss per subject per week

Series I

Group I. Underweights, 0.16 lb. Overweights, 0.07 lb.
Group II. Underweights, 0.03 lb. Overweights, 0.17 lb.
Group III. Underweights, 1.00 lb. Overweights, −0.07 lb.

Series II

Group I. Underweights, 0.04 lb. Overweights, −0.08 lb.
Group II. Underweights, −0.17 lb. Overweights, 0.13 lb.

B. Effect on absence due to illness. The effect of the supplement on absence from illness was obtained in two ways: first, by the contrasting of the period just before and just after feeding the supplement with that during the test period (in this series the carry-over benefit of the supplement is apparently supported by the results in the post-period); and second, by the contrasting of the behavior of the same subjects in the same seasonal period the year before the supplement was given. The data from which conclusions are drawn are given on page 242.

TABLE III

Total absence record in periods

GROUP	NUMBER	SUPPLEMENT	PRE-PERIOD		SUPPL. PERIOD		POST-PERIOD	
			1931 Hr.	1932 Hr.	1931 Hr.	1932 Hr.	1931 Hr.	1932 Hr.
I	76	B & M	889	510	869	164	667	495
II	27	B only	773	329	581	100	354	37

Absence from illness only

GROUP	NUMBER	SUPPLEMENT	PRE-PERIOD		SUPPL. PERIOD		POST-PERIOD	
			1931 Hr.	1932 Hr.	1931 Hr.	1932 Hr.	1931 Hr.	1932 Hr.
I	76	B & M	1662	510	1293	164	785	229
II	27	B only	396	76	179	100	94	37

These data show that there was a definite benefit in the reduction of absence from illness as the result of the supplementing with bananas and milk, and to a positive but lesser degree by bananas alone, whether contrast is made with weeks preceding the test period in 1932, or with the previous year's record when no supplementing was used. By such reduction of absence both productivity and earning capacity of the worker were helped.

The gains in weight per week of these subjects discount the possibility of any fattening effect of the supplement as a matter for alarm. In general, the supplement produced little change in the weights of the subjects, benefitting some and failing to benefit others, and indicating that the dietary habits of each subject were probably little modified as to total calorie intake by the supplementary diet.

Since only a few subjects were represented in this study the results are not entirely conclusive, but are indicative of what might be accomplished by wider experimentation in the industrial field.—Laura Comstock, Medical Department, Eastman Kodak Company, and Walter H. Eddy, Department of Physiological Chemistry, Teachers College, Columbia University.

Food Waste

The problem of food waste is one of the less attractive aspects of food service, yet it is one which well repays study. In good times or bad,

we should consistently discourage the wasting of food which could have been consumed. It is important that we should do more than plan meals. The dietitian's duty ends only when she knows whether the food is eaten. If it finds its way into the garbage can she should know the reason.

There are three methods which may be used for gauging food waste: inspection, measuring, and weighing. A combination of inspection and weighing may be found more informative than either alone. The simplest procedure is for the employee in charge of collecting garbage to report the weights, together with a list of foods especially noticeable in the contents.

It appears that the most accurate method of weighing is the separation of edible from inedible waste. This gives a much more exact record, with no possible alibi for a sudden rise in the amount of garbage from a given division. In many hospitals, however, it is almost impossible to make such an arrangement. It is better to weigh the total waste than to ignore it, entirely, because of the difficulties presented. If the inedible waste is included, one expects to find a sharp rise during the summer months, when added weight is given by melon rinds and inedible portions of other fresh fruits and vegetables. Nevertheless, a graph of the monthly averages for several years gives a good comparative basis, as the peak will usually come in the same months, and one can readily see whether the trend is downward or upward from one year to the next.

Information obtained by the weighing of waste may be used to develop a competitive spirit between different divisions, if the average amounts so obtained are posted. Emphasis upon this point helps to secure coöperation of patients and personnel, and thus to reduce waste. Furthermore, such data are of real assistance in meal planning. We may thus avoid serving foods which are not well liked, and be able to adopt methods of preparation that will make certain foods more acceptable.

Hospitals which have made a practice of weighing food waste find that real savings result. We need not be wasteful in order to be well-fed, and every pound of edible waste has a dollar-and-cents value which might better be applied to the purchase and preparation of food.—EDITH R. TILTON, Chief Dietitian, Barnes Hospital, Saint Louis.

SOME FIGURES ON ELECTRIC COOKING AND BAKING

In September 1932, Florida State College for Women opened a new kitchen, so planned that electricity would be the chief fuel used. The

average cost of operation for three years is given below. These figures are for cooking and baking only. Light and power are not considered in this study.

SCHOOL YEAR	AVERAGE AMOUNT, KWH PER MONTH	RATE	TOTAL	AVER. DAILY NO. MEALS	PER DAY	PER MEAL
1932–33	16,520	.01688	$278.85	4,090	$9.29	.0022
1933–34	17,074	.0174	$297.08	3,549	9.90	.0027
1934–35	18,425	.01599	294.62	3,771	9.82	.0026
Average for three years.....	17,339	.01675	290.18	3,803	9.67	.0025

All meals are served family style. There is no à la carte service. The equipment used is as follows:

Electric:

Six heavy duty ranges, with ovens
Two heavy duty double roast decks
One double deck bake oven, 85 sq. ft. baking area

Steam:

Three 60 gal. jacketed kettles
Two 40 gal. jacketed kettles
One 50 gal. jacketed kettle
Two upright steamers

Electricity as a fuel has proved economical for our use. It is bought wholesale from the city, comes to the campus at 2300 volts, and is distributed from the campus control room to the points needed. The rate per KWH varies with the total campus consumption. As compared with other fuels, electricity has provided a relatively cool kitchen, has been a clean fuel, and has been entirely satisfactory from a cooking and baking standpoint.—ANNA M. TRACY, Dietitian, Florida State College for Women, Tallahassee.

SHALL WE HAVE A SELECTIVE MENU?

Since the selective menu offers more variety, it is easier to cater to the diverse tastes and food customs of the hospital group. The outdoor worker, the sedentary worker, and the individual with food idiosyncrasies due either to food habits or to food allergy can more readily find what they crave or need. Variety stimulates interest, thus creating a good psychological effect upon the patron.

In order not to defeat the purpose of the selective menu, the dietitian

will plan her menus with a view to variety from day to day and week to week, but will not offer too many choices in the day's menu.

The selective menu may be a means of using up left-overs or, on the other hand, it may result in *more* left-overs, if the balance of popularity of foods on the menu is not even. Market lists will be more complicated, quantities ordered will be smaller, and more vigilance and care will be needed in the checking of supplies. The work of the staff may be increased, and the equipment needs will be greater and different from those where there is no selection.

With a wider selection of foods the problem of serving will also be changed. A longer period of time should be given to the meal hour. It calls for a different type of employee organization, and gives rise to a need for very careful training and attention to detail.

If the institution is a college boarding department on a limited budget, with a limited time for the meal hour, and with student helpers employed to serve, it would be better to plan menus without choice. Where children are the patrons, this plan is better since many find that they do not have sufficient judgment and knowledge to make a wise selection of food. Where no selection is possible, the dietitian should be alert to the food habits of her group, as well as to their needs. Menus will not, necessarily, be monotonous, nor their variety limited, if she is always looking for something different. She needs to be professionally expert and always interested in her work.

One aim in food service is to please the patron. From the commercial viewpoint this is most important. The selective menu for this reason, and those already mentioned, should be used wherever the situation, be it commercial or otherwise, justifies or demands it.—CLARA G. TURNER, State Teachers College, Harrisonburg, Va.

VISITING HOMEMAKERS' SERVICE

The inclusion of a visiting housekeeper group in the nutrition service of any welfare department is of exceeding importance. It makes possible home assistance for those families who are in need of instruction in food purchasing, meal planning, homemaking, dressmaking, or the care of children or invalids. This first hand help and instruction, given in the home, itself, under the conditions and with the equipment and resources available to the homemaker, is far more effective than class instruction. The homemaker is neither embarrassed by the presence of strangers, nor handicapped by removal to surroundings strange to her where she is taught to work with equipment which she herself does

not own and probably never will. Through demonstration, suggestion and encouragement, the visiting housekeeper teaches how to make the most of what is at hand. Many times homes can be made much more liveable with the instilling of a little home interest and ingenuity.

Such a service makes it possible for the social worker, who has neither the time nor the training, to render her own specialized service, unhampered, and to turn the close supervision of certain families over to another department. The hospital and the physician are thus enabled to have suggestions regarding special diets, home routine, change in sanitary or health conditions, supervised in the home. Assurances that instructions will be, in most cases, more closely followed if a housekeeper is requested, means much in many cases. How often the patient misunderstands or cannot understand at all the instructions given him by the physician—and how difficult it is for the busy physician to appreciate the home conditions and possibilities when they issue instructions!

New-born babies, or patients recently discharged from the hospitals, may be followed more closely than the busy program of the social worker permits. This is especially important when there is no particular reason for visits by the public health nurses. The help rendered at such times is deeply appreciated by the medical service and the families themselves.

The housekeeper, through intimate knowledge of the home, learns much with which to assist the busy social worker. She can interpret the policies of the nutrition and health services and can many times persuade the patient or homemaker to do something which he or she has heretofore refused to do. The housekeeper can go with the mother to the clinic, take the children herself, or care for children or invalids while the mother is away on necessary business.

The service which this group can render is determined by the personnel of the group and the type of interrelation between it and the social service staff. In the selection of the personnel of the group, the primary qualification is a sympathetic understanding of people and situations. Each must, herself, have felt the need for very close budgeting and economy, and have been able to meet such difficult situations successfully. She must, of course, have a knowledge of cooking and homemaking. In addition, sewing, millinery and nursing are qualifications in some of the group at least, make a broader service possible. If several ages and national groups are represented in the group, more satisfactory adjustment may at times be made.

Such a service, even though limited to one or two workers, is well

worth the effort which its inauguration and maintenance require.—ESTELLE E. HAWLEY, University of Rochester Medical School, Rochester, N. Y.

THE THERAPEUTIC VALUE OF A KETOGENIC DIET

The ketogenic diet has become a useful therapeutic measure in the treatment of epilepsy, migraine, asthma and infections of the urinary tract. While not a specific cure for these or for other pathogenic conditions, it has proved satisfactory for some individuals. This diet, containing a large amount of fat and a minimal quantity of carbohydrate, should be nutritionally adequate as well. Unless carefully planned, however, the calcium, phosphorus and vitamin B content will not be sufficient for maintenance of the adult or for growth in children.

In practice, the diet has many effects upon the human organism. Nausea results unless the fat content is increased gradually. The high FA/G ratio produces such an excess of the ketogenic factors that ketone bodies (acetone, diacetic acid and beta-hydroxy butyric acid) are excreted in the urine. Its use is followed by a loss of weight, possibly resulting from a dehydration of body tissue. According to Marriott[1], dehydration itself probably produces a shift in the acid-base balance of the body so that there is a tendency toward a greater acidity of the tissues. In other words, there is probably a shift toward acidity in the physio-chemical state of the body fluids, but the exact mechanism is not known. Apperly and Norris[2] find that a ketogenic diet does not increase the acidity in the blood and tissues of normal individuals. It produces a decided ketosis which is compensated by an alkalemia resulting from a fall both in plasma and red cell CO_2. They believe that the ketone bodies stimulate the respiratory center and that the resulting hyperpnea removes sufficient CO_2 to prevent an acidotic condition in the blood and tissues. This mechanism may be greater in some individuals than in others, which fact may explain the reason that the ketogenic diet does not always relieve diseased conditions.

As pointed out in the review by Barborka[3], this diet cannot be said to cure epilepsy, but it produces surprisingly uniform results in controlling convulsive seizures. When there is intelligent coöperation, seizures in about one-third of the cases are arrested, a third are so benefited that those treated wish to continue the diet, while the remaining third are not helped at all. Without doubt, the best results are obtained in the

[1] Physiol. Rev. 3: 275–94, 1923.
[2] Am. J. M. Sc. 185: 802–10, 1933.
[3] J. Am. Dietet. A. 8: 471–81, 1933.

treatment of children and young adults who are just beginning to have convulsive seizures. Failure most often occurs in cases of long standing, especially in those which have resulted in mental deterioration. Helmholz and Keith[4] believe that the control of convulsive seizures is due to the combined effect of the ketone bodies and the dehydration of the tissues. Byrom[5], on the other hand, thinks that they are controlled by a complex mechanism, involving an equilibrium between water and the various chemical ions within and around the nerve centers. Because a ketonic diet does benefit a large proportion of the patients treated, its use may well be continued until furthur research in epilepsy gives more detailed information as to the cause and treatment of the disease.

In the treatment of migraine, a ketogenic diet would theoretically counteract the alkalosis which precedes an attack, and prevent the symptoms. In actual practice, Barborka[6] finds that a ketogenic diet controls about thirty per cent of the cases of migraine and reduces the frequency and severity in an additional fifty per cent of the cases. This degree of success indicates that with further experimentation the diet may prove to be even more valuable than it is believed to be today.

Beckman[7] suggests that a ketogenic diet may benefit asthma because of his belief that allergic conditions are caused by a shift in the acid-base balance toward alkalinity. He bases his conclusion on the fact that asthma, in many individuals, is benefited either by starvation, an acute infection, a high altitude or a number of other factors, all of which tend to increase the acidity in the body. Peshken and Fineman[8] gave a ketogenic diet to 15 children who had asthma. They report that 93 per cent of the cases were benefited during the first 3 weeks of treatment. Montagnini[9] studied the effects which an acid-producing diet had upon the blood and urine of 12 adults with severe cases of bronchial asthma. He finds that the diet relieved the symptoms in all cases, but he does not believe that it removes the underlying causes. He does not think that the attack is produced by a constitutional alkalosis, but that the increased respiration during the attack causes the alkalosis. Since the diet helps so many cases, experimental studies to determine its value should be encouraged.

[4] Arch. Neurol. and Psychiat. 29: 808, 1933; abstr. Nutrition Abstr. and Rev. 3: 1167, 1934.
[5] Quart. J. Med. 1: 289–97, 1932.
[6] J. A. M. A. 95: 1825–28, 1930.
[7] J. A. M. A. 95: 1582–86, 1930.
[8] Am. J. Dis. Child. 39: 1240–54, 1930.
[9] Minerva med. 1: 877–83, 1934; abstr. J. A. M. A. 103: 720, 1934.

A ketogenic diet is proving to be quite successful in the treatment of infections of the urinary tract. According to Clark,[10] if it produces an acidity in the urine as great as a pH of 4.6 to 5.0 the colon bacillus will be inhibited. He does not believe, however, that the acidity is the only beneficial factor, because the urine of patients in ketosis may contain substances which have a bacteriocidal action independent of the acidity. Helmholz[11], as well as Clark[12] and Fuller[13], find that over half of the patients treated with a ketogenic diet are benefited. In fact, in many cases the acidosis thus produced is more satisfactory than other forms of medical treatment in combating infections of the urinary tract.

According to all investigators, a ketogenic diet increases the acidity of body fluids and tissues. Although it is not a cure for any specific disease, it is a useful therapeutic measure in the treatment of diseases in which there is a tendency toward alkalosis, and in infections of the urinary tract.—JEAN HAWKS, Assistant Professor of Nutrition, Michigan State College.

RECENT TRENDS IN THE TREATMENT OF KIDNEY DISEASES

It is a far cry from the days when the "Low-Protein, Salt-Free Diet" was considered a panacea for all ills of the kidneys, to the present time, when the dietary treatment of nephritis is highly specialized. The interim has been broken by the clinical adaptation of newly-discovered experimental data. This has been done so successfully that now more and more internists are forsaking the old method for the new.

In the new type of diet for nephritis there are three major factors—protein, salt, and fluid—and two minor factors—total calories and carbohydrate—to be considered.

Protein, which is of importance in any case, has a new significance when the kidneys are not normal. Protein catabolism produces certain end-products that must be excreted by the kidneys. When the latter are not functioning properly, it would seem reasonable to reduce the protein intake in order to reduce the amount of end-products to be excreted. The old "Low-Protein Diet" was prescribed on the basis of this reasoning. However, increased knowledge of metabolic processes has brought to light the fact that whether the supply of protein is exogenous or not, a certain amount will be catabolized, daily, which necessitates the excretion of waste products. When the exogenous supply of protein

[10] J. A. M. A. 98: 1710–11, 1932.
[11] J. A. M. A. 99: 1305–09, 1932; Am. J. Dis. Child. 46: 672–73, 1933.
[12] Lancet 223: 511–13, 1932; Practitioner 132: 34–44, 1934.
[13] Lancet 224: 855–56, 1933; Lancet 225: 735–39, 1933.

is limited, the body tissues are broken down. By the restriction of exogenous protein the kidneys are not spared and the body suffers[1,2]. It seems logical, therefore, to supply in the food an amount of protein sufficient to meet the body requirements, or in other words, to maintain the body in comparative nitrogen equilibrium. When it was shown that this could be done without damaging the kidney[3,4,5], it became the generally accepted practice.

Under one condition the low protein diet is still used. This condition occurs when the renal insufficiency becomes so great that the urinary excretory products pile up in the blood, bringing about retention uremia. Then, as a temporary expedient, the exogenous protein is reduced[3]. It is increased when the acute phase has passed.

High protein therapy has become important in certain types of kidney disorder—notably nephrosis. As much as 150 to 200 grams of protein may be given with beneficial results.

The rationale of such treatment lies in that: (a) in nephrosis there is a loss of albumin through the urine; (b) this lowers the osmotic pressure of the blood; (c) as the osmotic pressure falls, edema occurs; (d) the feeding of large quantities of protein replaces the lost albumin; and (e) this replacement restores the osmotic pressure to normal and the edema subsides.

Epstein was the pioneer in the field of high protein therapy for nephrosis[6] and when it was shown that these results could be obtained without damage to the kidney[3,5,7]—even when the protein intake was as much as twice the customary amount—others followed in his footsteps.

Salt is second in importance only to protein when the kidneys are not normal. Formerly it was restricted drastically. The results were that, first, the food was so unpalatable that the diet was either broken or refused, and, second, that the salt content of the body suffered. At present the tendency is to allow a reasonable amount of salt except when edema is present[7] or when there are signs of retention edema[8]. Under these circumstances the food is prepared and served without salt, but when the edema subsides it is permitted again.

[1] Lusk, G.: Physiol. Rev. 1: 523, 1921.
[2] Pennsylvania Med. J. 37: 199, 1933–34.
[3] Mosenthal, H. O.: J. Am. Dietet. A. 9: 81, 1933.
[4] McCann, W. S. and Heutmann, E. H.: J. A. M. A. 99: 66, 1932.
[5] Pennsylvania Med. J. 37: 702, 1933–34.
[6] Epstein, A. A.: Am. J. M. Sc. 154: 638, 1917.
[7] Butler, A. M.: New England J. Med. 208: 71.
[8] McCann, W. S.: Ann. Int. Med. 5: 579, 1931.

Fluid intake, like salt, was restricted in the older method of treatment. However, when it was shown that the primary cause of edema was not the kidneys, which on the contrary, were capable of excreting any fluid brought to them, fluid was given more freely. When the edema is very marked the fluid intake is restricted to avoid additional strain on the body cells. Even then, according to Butler, extreme dehydration must be avoided as it leads to discomfort, anorexia, and even nausea. Under some circumstances fluid is forced. This occurs when it is necessary to promote the elimination of end products of protein catabolism as in pending uremia.

While protein, salt, and fluid intake are of major importance in the dietary treatment of nephritis, total calories and carbohydrate must not be overlooked.

The total calories should be adequate to promote healing and to prevent debility. The course of nephritis is usually long, and there are periods during which the patient is able to carry on his usual activity. Unless attention is paid to the general nutrition of the patient, these periods will be shortened, and the terminal phase will occur unnecessarily early.

The greater portion of the calories, aside from those derived from the protein, should be given as carbohydrate. Carbohydrate is an efficient protein sparer, is easily digested, and is a readily available source of energy. In acute stages, as during a hemorrhage or during uremia, carbohydrate should be forced, particularly as glucose.

More and more, as the knowledge of the relation of diet to kidney disorder is brought to light, there is a tendency to forget the old "Low-Protein, Salt-Free Diet" regime. The trend at present is toward the adjustment of the diet to the individual patient, bearing in mind the potentialities of that patient's kidneys, and his general condition. Drastic restrictions, inimical to well-being, are avoided, and an attempt is made to provide an adequate, edible, and well-balanced diet, from which, in emergencies, temporary departures may be made. Such a diet will not cure nephritis, but it will enable the patient to carry on a reasonably normal existence during the periods of remission. It will increase his sense of well-being, and it will prevent the malnutrition and resulting anemia which formerly complicated the clinical picture and hastened the onset of the terminal phase.—D. RUTH PEARSON, The Western Pennsylvania Hospital, Pittsburgh.

THE CLEVELAND MEETING

Cleveland as a Medical Center

"Where Science and Mercy Meet" is the legend below a photograph of The University Hospitals of Cleveland. It is but one of Cleveland's many progressive hospitals which members attending the Annual Meeting of the American Dietetic Association will wish to see in October.

The University Hospitals were incorporated as such in 1925, and included Babies and Childrens Hospital and Maternity Hospital, on the Western Reserve University campus, and Lakeside Hospital, which was then situated on the lakefront. One year later Rainbow Hospital for Crippled and Convalescent Children joined the corporation.

In February, 1931, the old Lakeside building was vacated, and patients and staff moved into the present building. Dedication of this new Lakeside took place in June of the same year.

The University Hospitals are affiliated with Western Reserve University, and serve as training schools for students in the Schools of Medicine, Pharmacy, and Nursing.

Lakeside has a bed capacity of 313. In addition, the Leonard C. Hanna House (private pavilion of Lakeside) has 66 beds. The University Hospitals also maintain a large out-patient department. Maternity Hospital operates six pre-natal, natal, and post-natal stations covering the entire community.

More than 1,500 people, including professional and lay workers, are employed by the University Hospitals. The laundry system turns out more clean linen daily than any other laundry business in the community. In the diet kitchens, more meals are prepared and served each day than in any one of Cleveland's large hotels.

At a cost of $15,000,000 (not including the land) the following buildings have been constructed: Nurses' Dormitory, Leonard C. Hanna House, Lakeside Hospital, Institute of Pathology, Babies and Childrens Hospital, Maternity Hospital, School of Medicine, power and service buildings. These, together with the Allen Memorial Library, comprise Cleveland's Medical Center.

The Cleveland Clinic Foundation in its conception, physical equipment, and organization, represents one expression of group coördination for the benefit of the sick or disabled individual that has reached great distinction in the United States. Its purpose is to bring together, under a unified system of consultation, all facilities of known value, and to discover and invent new facilities that will aid in accurate diagnosis and effective treatment. Research, lectures, and clinical studies in medicine, surgery, and related sciences and subjects are an inherent part of the program for the realization of this purpose.

The physical equipment of the Foundation consists of the clinic, the hospital, and the research buildings, besides laundry, refrigeration, and heat and power plants, and shops for meeting the many mechanical requirements of the clinic's various departments.

There is a hospital of eight stories with a capacity of about 250 beds. On the first floor is the dietary department with the offices of the chief dietitian and her two assistants, the dining rooms for staff and personnel, and the kitchens and all facilities for food preparation, storage, and service. On the second floor are various offices and reception rooms and the metabolic dining room for serving special diet meals to out-patients. The third, fourth, and fifth floors are devoted to hospital rooms, the seventh, to surgery. On the eighth floor is the roof garden where luncheons and dinners are frequently served, up to one hundred persons being pleasantly accommodated.

In the clinic building from 275 to 450 patients are registered daily. Here are consultation rooms for diagnosis in all general and special branches of medicine and surgery and quarters for such allied departments as executive, pharmaceutical, editorial, and art, as well as the library. On each floor are waiting and reception rooms.

The Research Building houses the department for x-ray therapy, the various labora-

tories (biophysical, radiation, clinical, pathological, biochemical research and medical research), the museum, the operating room for animal surgery, and animal quarters. Here also are the radium emanation plant and the glass blower's shop.

The permanent staff of the clinic consists of twenty-six specialists in the various fields of medical and surgical practice. They are assisted by twenty to twenty-five fellows whose service is divided between the clinic and the hospital.

Dr. George W. Crile and Dr. William E. Lower, two of the four founders, have inspired the maintenance of high standards of service and research, and share with the members of the staff, in whatever fields their interests lie, the aims upon which are to be built the permanent contributions of the future.

The Program

The following changes and additions have been made to the program since it was published in the July JOURNAL:

Monday, October 28

6:00 p.m. Dinner, The Cleveland Home Economics Women in Business wish to entertain the visiting Home Economics Women in Business

8:30 p.m. General Session, Katherine Mitchell, presiding

Symposium: Dietetics in Foreign Lands

France—Kathryn Heitschu
Russia—Helen S. Mitchell
Egypt—Lenna F. Cooper
China—Katherine Mitchell

Tuesday, October 29

10:30 a.m. General Session

Educational Trends in the Field of Dietetics, Frederic W. Howe, Director, Pratt Institute

No *8:30 p.m.* session

Wednesday, October 30

10:30 a.m. General Session

The Significance of Amino Acids in Nutrition, Dr. William C. Rose, Professor of Physiological Chemistry, University of Illinois

4:30 p.m. Food Clinic Committee Meeting, Martha Alderman, presiding

Thursday, October 31

10:30 a.m. General Session

Some Newer Developments in the Treatment of Rickets, Donald J. Barnes, M.D., Detroit

2:15 p.m. General Session, Administration Section

The Menu, Linda Spence Brown, Director, Faculty Club, Ohio State University

1:45 p.m. General Session of Community Education Section Emergency Work, How Dietitians Serve

The City:
Boston, Gertrude T. Spitz
Detroit, Sophia Halstead
Chicago, Adelaide Spohn

The State:
Pennsylvania, Anna P. K. Stapler
Massachusetts, Mary Spalding
Iowa, Lola Schmidt

The Region: TVA, Blanche Tansil

The Federal Government: Marjorie Heseltine

The Transient Relief Service: M. Faith McAuley

—MARY LOUISE BONE,
Program Chairman

The Trips

Friday is given over to trips. In the morning at nine you will be interested to see the Home in the Sky, a house complete in every detail, even to the landscaping, built within a large office building. Or, if you prefer, you may visit one or several of Cleveland's restaurants.

At ten o'clock one party will leave the hotel for Nela Park and another for Rainbow Hospital. Nela Park is the testing laboratory of the General Electric Company for home and institutional lighting and equipment. Rainbow Hospital is Cleveland's famed hospital for convalescent children.

Luncheon will be at the Cleveland Club.

In the afternoon the trips include a visit to the new University Hospitals and Mount Sinai, or to Saint Luke's, the Cleveland Clinic

Hospital and Huron Road Hospitals, all returning at 4:30 to the tea given by the Western Reserve University School of Nursing at the Nurses' Dormitory.

In your spare time you will want to visit some of the fine shops which are within easy walking distance of the hotel. Some of them will furnish suggestions for the fall and winter wardrobe, while others are outstanding for their china, glassware and silver displays. The largest and newest department store can be reached by an inside passage from the Cleveland Hotel (in case you run out of hairpins or something essential for dressing for the banquet).—HELEN ROBERTSON, Chairman, Local Publicity, The Cleveland Plain Dealer, Cleveland.

The Allergy Dinner

*A*ll dietitians interested in
*L*earning the scientific way to
*L*ive without milk, wheat, and
*E*ggs or other food allergens,
*R*emember the dinner which is
*G*oing to be held for
*Y*ou—with Dr. Eyerman present.

We are planning to serve you a well balanced "allergy diet", so you may bring your asthma and your hives with you. A dietitian who has had personal experiences in preparing and partaking of elimination diets, will talk to you about "Being Sensitive to Eating Three Times a Day". Mr. Helmerichs, of the Ralston Purina Mills Company, will tell her and you "How to Be Healthy and Happy with Ry Krisp". The Chicago Dietetic Supply House will feature some of their new foods for the allergic. Other exhibitors will be present to talk with you. Then Dr. Marietta Eichelberger, of the Irradiated Evaporated Milk Institute, will give you a report of "Evaporated Milk Used Successfully in Cases of Allergy". Dorothy Duckles will preside.

But the main attraction of the evening will be an opportunity to present your problems to Dr. Charles H. Eyerman, one of the nation's outstanding allergists. He will be there to lead you in an informal discussion and to answer any and all of your questions about food sensitivity.—VIRGINIA KRANING, Chairman, Diet Therapy Section.

The Exhibitors

Butter Industry Committee. All about butter.

The Chicago Dietetic Supply House is planning on exhibiting a line of products and equipment for use and control of starch and sugar in restricted diets. They expect to make a special display showing new Juice-Pak Fruits, also to show their new line of products for use in allergic diets, wheat free, egg free and milk free products.

The Dry Milk Company, Inc. All about dried milk.

F. A. Davis Company cordially invites you to visit their booth No. 54 where the main publication on display is "Food in Health and Disease" by Katherine Mitchell Thoma. This is a text covering preparation, physiological action and therapeutic value of food. It serves in the hospital as a text for student nurses; in the college, as a text in advanced courses on food. There are excellent diet lists. Do you have a copy?

R. B. Davis Company. Visit Booth No. 29 and be served with Cocomalt, a popular food drink, supplying rich calcium, phosphorus and vitamin D content, in a particularly delicious form. New Food Value charts, calcium, phosphorus, vitamin D and caloric value, are available to those who desire them. Besides Cocomalt, Davis Baking Powder, Cut-Rite Waxed Paper and a complete set of the educational material will be on display. Elsie Stark, Director of Home Economics Department, is in charge of the booth.

The Du Bois Soap Company, manufacturers of soap products, will show *Litening K-O-L*, new dishwashing compound discovery developed in the Du Bois Company Laboratory that *Knocks Out Lime* and magnesium in water, thereby preventing lime scale deposits and precipitations. The result is clean machine free of lime

scale, . . glossy stainless dishes . . sparkling glasses . . and bright shining silver. Remarkably improved results made possible to hospitals and institutions.

The J. B. Ford Company will have booth No. 39 where Wyandotte Detergent for maintenance cleaning and the following products for culinary cleaning and sterilizing will be on display: Wyandotte Cherokee, Wyandotte Aluminum Cleaner 4X, Wyandotte H D C, and Wyandotte Steri-Chlor. In attendance at the booth will be Mr. V. R. Jones, Mr. R. D. Sherwood of the Cleaner and Cleanser Department, Mr. G. T. Robinson, manager of the Cleveland office, and Mr. F. H. Tholen of the Wyandotte office.

Fruit Dispatch Co. At Booth Number 42, you will learn the latest "news" about bananas. There is a new booklet just off the press by Dr. L. Jean Bogert. There are recently developed banana recipes. And there will be one of those refreshing banana drinks for you to sample.

General Foods Corporation. Booths 40 and 41—an exhibit of General Foods products and of Birdseye Frosted Foods, all packed for the institution market. Certain of the General Foods products will be exhibited to show the ingredients used in their manufacture. Recipe and educational material will be displayed and distributed. A recently published booklet, "Desserts," will be mailed upon registration at the booths.

Gerber Products Company. Gerber's revolutionary new process of shaker cooking of strained foods will be explained and the foods demonstrated at Booth No. 13. Reduction in the time of cooking results in better color and flavor, accomplished by avoidance of overcooking. Booklets and reprints are available for use of dietitians, some for class use and some for professional use only.

H. J. Heinz Company. H. J. Heinz Company, creator of the famous 57 Varieties of pure foods, displaying Strained Foods, Tomato Juice, Breakfast Cereals, and institutional-size packages of the 57 Varieties. Do not fail to register for the Heinz Nutritional Chart, a set of reference charts, invaluable to the dietitian in diet planning.

Horlick's Malted Milk Corporation. Can the same product be used both in a reducing diet and for building up? Horlick's will explain in their booth the advantages of both the powder and tablet forms of their product in diets for increasing or for decreasing weight. Samples of Horlick's, the Original Malted Milk, natural and chocolate flavors will be distributed. Booth No. 23.

Irradiated Evaporated Milk Institute. If you have questions regarding the irradiation of evaporated milk—concerning development, technique, potency, uses, or any other details—be sure to visit the exhibit of the Irradiated Evaporated Milk Institute in Booth 15 where an irradiating machine is shown in operation. Dr. Marietta Eichelberger, Director of Nutrition Service of the Irradiated Evaporated Milk Institute, will be there to discuss any queries presented.

Journal of Home Economics. First choice in your periodical reading list is, of course, your professional magazine. Next choice should be the professional magazine that most nearly complements your own. See for yourself by getting a sample copy of the Journal of Home Economics at our booth.

Kellogg Company. Down Exhibitors Alley at Booth No. 43, dietitians and their friends will find the Kellogg Company. This is the eleventh consecutive year that this firm has shown its products at the annual A. D. A. meeting. Be sure to call and renew your acquaintance with members of the Home Economics Department who will be there with a welcome (and a corn flake) for you.

Knox Gelatine. The Knox Gelatine exhibit, located at Booth No. 18, should be of general interest to dietitians. Attractive and eye appealing dishes will be on display and samples of the popular Knox candy will be given away. In addition to the visual demonstration of these appetite-appealing

gelatine desserts, salads, pies, etc., dietitians will likewise be interested in the monthly recipe and bulletin service that the Knox Gelatine Company send out to their customers at regular intervals. These not alone give a variety of dishes, but also calculations all figured on costs, etc. A visit at the Knox Booth should be very much worth while.

Kraft-Phenix Cheese Corporation. The Kraft-Phenix exhibit will feature the complete line of cheese and salad dressing products, and will include the new Kraft Dairy Fresh Caramels, Old English Toffee, and the most recent developments in whey powder products.

Libby, McNeill & Libby. Be sure to visit Libby's exhibit of Homogenized Foods in Booth 18. See how Libby, by a special method of Homogenization, makes solid foods more easily and completely digestible. See how Libby's combinations of Homogenized Foods give ideal blends of essential food elements.

J. B. Lippincott Company. The outstanding book of the year for the dietitians is the new "Treatment By Diet in Health and Disease" by Clifford J. Barborka. This, with a most widely used book on Dietetics, "Nutrition" by Cooper, Barber and Mitchell and the many other books that are of interest to dietitians will be shown at the Lippincott Booth. Make Lippincott's Booth your headquarters. You will be greeted by experienced nursing educators and you will not be importuned to buy.

The Macmillan Company will have on display at their booth the new sixth edition of Proudfit's "Nutrition and Diet Therapy" which has met with such wide approval. The new edition of Mary P. Huddleson's "Food for the Diabetic," as well as Newburgh-Mackinnon's "Practice of Dietetics," the various works of Dr. Mary Swartz Rose and Professor Henry C. Sherman and many others will also be among the books on exhibit.

The Maltex Company, Inc. Maltex Cereal, made in Vermont, is a blended mixture of toasted whole wheat with the coarsest bran removed and malted barley and wheat flour, seasoned with table salt. Thus it combines high nutritive value and delicious flavor. It is accepted by the Committee on Foods of the American Medical Association.

National Dairy Council. All about dairy products.

Ralston Purina Company. Completely new Allergy Diets, for the elimination of wheat, eggs or milk, are available at the Ralston Booth, No. 3. Baby Ralston, Ralston Wheat Cereal, and Ry-Krisp, the Whole Rye Wafer, will all be exhibited. New material on each product is available and will be on display.

Ad. Seidel & Sons. As the skill of a dietitian is often judged by the novelty and attractiveness of her salads, Ad. Seidel & Sons will present at their Booth No. 1 a comprehensive display of appetizing salads and a variety of gelatine desserts. Their salad expert in attendance invites you to observe how simple it is to prepare such a large variety of tasty salads from ordinary vegetables and fruit and what delicious gelatine desserts may be achieved by exclusive flavor creations.

John Sexton & Company. John Sexton & Company is introducing their new line of canned fruits packed in the juice taken from additional fruit of the same kind instead of in water as heretofore. No change will be made in the canned vegetables other than in the label. Both Alp Rose Canned Fruits and Canned Vegetables hereafter will be labeled "Sexton High Quality Foods for Restricted Diets" and will be packed under a Green and White label.

The Southern Rice Industry. Rice—the economical, versatile energy food will be featured in Booth 44. The Uses of Rice on the Hospital Menu by Millie E. Kalsem, Director of Dietary Department, Cook County School of Nursing, Large Quantity

Rice Recipe cards, Rice—200 Delightful Ways to Serve It, and other valuable booklets will be available. Beth Bailey McLean, Director of Home Economics, will be in charge.

E. R. Squibb & Sons. Late developments in the study of nutrition are always of interest to the dietitian. The exhibit of E. R. Squibb & Sons at the annual meeting of the American Dietetic Association will feature some of those "later developments". Members of the Association are cordially invited to visit the Squibb exhibit. Competent attendants will be present to discuss the new products. Booth No. 28.

Standard Brands Incorporated. New Institutional Recipes for Royal Gelatin Desserts and Royal Gelatin Aspics will be featured at the Standard Brands Exhibit. Miss Doris H. Tisdale, Home Economics Director, will be in charge. The following Standard Brands Products for Institutional Work will be exhibited: Fleischmann's Yeast, Chase & Sanborn's Coffee, Tender Leaf Tea, Royal Baking Powder, Fleischmann's Baking Powder, Royal Gelatin Desserts, Royal Arrowroot Puddings, and Royal Gelatin Aspic.

Stokely Brothers & Company. Stokely Brothers & Company add cereal to their line of strained foods. The new product is specially prepared from farina, rolled oats, wheat germ, barley flour, whole milk, soy bean flour, yellow corn meal, tricalcium phosphate and yeast—is seasoned with salt, strained to uniformly smooth texture suitable for baby—and protected in golden enamel lined cans. Visit Booth No. 31 and examine this new Strained Cereal product of Stokely's.

The Sunset Sales Company. The Sunset Sales Company are sole distributors for "Trujuis", fresh California Valencia-orange juice, lemon juice, Arizona grapefruit juice, and Hawaiian pineapple juice. The juices are squeezed from ripened fruits and are in frozen state twenty-one minutes after extraction and are so held until delivered to the consumer. Call at Booth 11 and learn why many of the large eastern hospitals and hotels are such large users of "Trujuis".

The Swartzbaugh Manufacturing Company exhibits several representative models of a new complete line of redesigned Ideal Electric Food Conveyors, improved in appearance and fully automatic in operation. New features and accessories offer greater utility, more economical operation and a wider range of standard models to select from. Illustrated and descriptive literature is available.

Tricolator Company, Inc. Tricolators—the improved filter drip coffee makers, easy to handle and easy to take care of—made in sizes from one cup to 150 gallons. Will fit any requirement you may have to meet for the unexcelled brewing of coffee. Special educational display of coffee filters for all types of coffee makers.

Vitex Laboratories, Inc. Subsidiary of National Oil Products Company. Vitex Vitamin D milk will be made and served at our booth (spaces 24, 25 and 26). Reprints of clinical studies made with Vitex milks will be available. Vitex Vitamin D milks (whole, pasteurized and evaporated) are the combination of the food values of milk with definite amounts of the Vitamin D of cod liver oil added. There are 400 U.S.P. units in every quart of whole milk and in each 14½ oz. of evaporated milk. This is sufficient Vitamin D to protect the normal full term infant from rickets. Reprints of studies of Vitex Vitamin D milks' relation to dental caries control will be found at our booth.

The Wander Company. Whenever you feel tired or "on edge", visit The Wander Company's booth and have a refreshing drink of Ovaltine, the well known Swiss Food Drink that has become so popular for nervousness and fatigue. In hospitals, Ovaltine is used routinely as a nourishment for nursing mothers, malnutrition and convalescence. At home, Ovaltine makes a delicious mealtime beverage as an alternative to tea or coffee. Visit Mr. Jenkins at the Ovaltine booth frequently and enjoy this refreshment. Booth No. 36 and No. 37.

Alida Frances Pattee, Mount Vernon, New York, publisher of Pattee's "Practical Dietetics" will exhibit the new 20th edition of this book, just issued. Rewritten, illustrated, and reset. It covers the newest phases of teaching dietetics, is clear, concise, easily grasped, and will be found invaluable to the physician, nurse and dietitian. The Diet Therapy section is the latest word on the subject, arranged for Pattee's Dietetics by eminent specialists, including the most popular diets in use today. Price $3.00.

Economics Laboratory, Inc., will show Calgonite, Soilax, and Mikrokline, in space number 9.

BOOK REVIEWS

Diet and Physical Efficiency. By Howard W. Haggard and Leon A. Greenberg. New Haven: Yale University Press, 1935, pp. 180. Price $3.00.

Believing that the quantity and quality of food have received a great deal of attention recently, but that the distribution *in time* has not received the attention that it deserves, the authors present a study of the influence of frequency of meals upon physical efficiency and industrial production. They have attempted to discover and formulate the principle of the best meal-time interval. That this principle is important is shown by the fact that on the same amount of food the industrial output of factory operatives may be as much as ten per cent greater under one meal-time arrangement than under another. The authors believe that this problem is not only one of practical importance to industry, but should also contribute to public welfare and industrial health. The presentation is designed to appeal both to experts in nutrition and to general readers, as well as those connected with industry.

Some Aspects of Management of College Residence Halls for Women. By Grace M. Augustine. New York: F. S. Crofts & Co., 1935, pp. 242. Price $3.00.

This textbook, with its able presentation of reliable factual data pertinent to college residence halls for women, fills a long felt need for both students and instructors. Its use will facilitate their application of modern scientific management principles to the institution economics field.

Miss Augustine's book impresses us with the accuracy of its carefully compiled and sanely interpreted data on staff, student employees, and food and house service pertinent to all college residence and dining halls, and wisely includes the more specialized records and operation problems peculiar to the coöperative units.

The book includes material invaluable in the clarifying of premises in the study of residence hall management for the student majoring in this field. In addition, specific sections of the book could be used with equal effectiveness by the instructor to secure their broader understanding of the specialized subjects of menu planning, personnel and financial management.

The section on menu planning gives a "Chart for Selective Menus with Menu Suggestions for Use With the Chart" and is worthy of particular mention, since it graphically illustrates the need for imagination in the use of forms and routine if interesting menus are to be planned. The author has done much to simplify the menu question, a satisfactory solution of which is the base line for successfully controlling so many of the daily operation problems.

This is the first time reliable figures have been available for representative residence halls throughout the country. The data in the tables in the textbook are separated into four geographical areas: West, Central, South and East. This provides a reliable yardstick of employment conditions, in the particular area in which the young or seasoned dietitian resides, to check against those in her own institution. The range of hours, wages and working days of regular employees; hours and wages of men and women students; as well as the average per capita labor hours and costs per meal of the food departments for six units of 100 each, ranging from 0 to 400 and above; and also the average per capita labor hours and costs per week for house service are given for these four areas.

Students and instructors now in home economics departments will welcome Miss Augustine's book as an immediately useful and authoritative presentation of the subject, while graduates who have not had the benefit of institution management instruction will find it an indispensable source of inspiration and guidance in meeting their daily management problems.—QUINDARA OLIVER DODGE, *Director Vocational Training Department, Women's Educational and Industrial Union, Boston.*

Accounting and Food Control. By Neva Henrietta Radell. New York: F. S. Crofts & Co., 1935, pp. 266. Price $3.50. Work Book $2.50.

The first in the series of Crofts' Textbooks on Institution Administration with Professor Mary deGarmo Bryan as editor, is quite outstanding. Dr. Bryan's reputation as a notable authority in the field of institution management has been borne out in the quality of the contents of this first book in the series, and gives real promise for the succeeding volumes.

Miss Radell's book not only supplies the teacher's need for a text on accounting, but provides as well a valuable reference for the administrative dietitian concerned with the control of food costs. This book contains authentic and up-to-date information on the technique and details of accounting practice as applied to five types of food institutional work; namely, tea rooms, school cafeterias, hospital nutrition departments, college residence halls and city clubs. The subject matter is arranged in case form which makes possible practical work problems for the student of accounting.

The realistic manner in which the data for the various cases and problems are presented should do much to hold the students' interest, and lend interest to the presentation of accounting practices by the intructors.

The tea room and school cafeteria cases carry on through a complete accounting cycle and represent a good picture of the details encountered. The charts of accounts included in the cases will help both student and administrator to understand the place of accounting in the managerial function. The treatment of special phases of food cost control in the hospital nutrition department case should be of real value to all hospital dietitians.

Some instructors will wish to supplement the section on "Accounting Theory and Practice" with lectures and class exercises of their own. As a source of reference for the administrator who wishes to brush up on accounting procedure, this section is excellent.

A supplementary work book for students, containing special forms and accounting sheets, is provided for use in connection with the study of cases and problems contained in the textbook.—QUINDARA OLIVER DODGE, *Director, Vocational Training Department, Women's Educational and Industrial Union, Boston.*

Lactobacillus Acidophilus and Its Therapeutic Application. By L. F. Rettger, M. N. Levy, L. Weinstein and J. E. Weiss. New Haven: Yale University Press, 1935, pp. 203. Price $2.50.

In this volume the authors, who have made a clinical and bacteriological study of the subject, conclude that lactobacillus acidophilus is probably by far the most significant factor in the successful application of acidophilus milk to the types of intestinal disturbances described and treated in the experiment. The contents include a discussion of oral and dental types of lactobacilli and their relation to lactobacillus acidophilus; "implantation" experiments with albino rats and normal human subjects; rules for the successful application of acidophilus therapy in so-called mucous colitis, irritable colon, and idiopathic ulcerative colitis. The appendix includes a brief discussion of media and methods, and a bibliography.

Diet Control. By George E. Anderson and Paul C. Eschweiler. New York: Gallo and Ackerman, Inc., 1935. Price $3.50.

This system of eleven hundred diets for the prescription of diabetic, anti-obesity and measured diets, in general, is another addition to the growing list of diet manuals put out by the staffs of hospitals. This, from the Metabolic Clinic of the Brooklyn Hospital (New York) includes "Diet Prescription Graphs," and starts from scratch with an outline of a minimal "basic diet." Tabular material includes interchangeable carbohydrate and fat units and instructions for the requisite dietary manipulations for the ketogenic, the uncomplicated and the complicated case of diabetes, and obesity. The material is presented in convenient loose-leaf form. Credit is given to Frances Dorrell, Marion Chesterman and Eleanor Austin, dietitians at the Brooklyn Hospital.

Studies in Metabolism during Pregnancy. By Callie Mae Coons *et al.* Stillwater, Oklahoma: Experiment Station Bull. No. 223, 1935, pp. 113.

This is a concise comprehensive monograph on the subject, by a group distinguished for their work in the field. Two hundred and fifty references from the literature are cited.

Low Cost Special Diets for Adults. Prepared by Joint Committee, Dietitians Association of Philadelphia and Pennsylvania State Dietetic Association. 1935, pp. 19. Obtainable from Marion Bell, Ph.D., Temple University, Broad and Montgomery Ave., Philadelphia. Price 25 cents.

This booklet shows how ambulatory adult patients, living at a minimum income level, may be instructed to care for any special diet needs without deviating too greatly from the pattern of the family diet. Facts and figures on the normal diet with market guides for one week, and modifications called for in a number of disease conditions, are included. The authors emphasize that the diets included are to be used only as guides.

Curing Constipation Naturally. By G. Z. Dupain. Sydney, Australia: Briton Publications, 1934, pp. 128. Price 10/—.

This is intended to be a "guide for adults and adolescents delineating in brief a natural method of curing uncomplicated constipation." The author, who has had considerable experience in an institution for physical education, has arranged this book into two parts. Section 1 covers the anatomy and physiology of the large intestine, and the etiology and effects of constipation. Section 2 covers the treatment of constipation by diet, exercise and "auto-mechanical methods." Series of exercises are given, designed to cure constipation "naturally."

Note.—In regard to George Z. Dupain's book, *Diet and Physical Fitness*, a review of which appeared in the January, 1935, JOURNAL, the author states that all the autographed photographs which appeared are genuine autographs, except those of Fischer and Lavoisier. These reproductions are part of his collection of autographed photographs of great chemists.

Baffling Obesity. By G. Z. Dupain. Sydney, Australia: Briton Publications, 1935, pp. 214.

This book warns the reader against short cuts in reducing, and offers the author's ideas on obesity, its causes and treatment. He details various exercises suited to both men and women, in which methods are suggested for the removal of excess body avoirdupois from a given location.

Community Canning Centers. By Mabel C. Stienbarger, Bureau of Home Economics, and Miriam Birdseye, Office of Cooperative Extension Work, U. S. Department of Agriculture.

This is the Bureau's revised pamphlet on canning, having been published in May, 1935. It contains full and authoritative instructions for the operation of these centers.

Cooking American Varieties of Rice. By Mabel C. Stienbarger, associate specialist in foods, Bureau of Home Economics. Price 5 cents.

Includes data on and methods of cooking all varieties of and grades of American rice, including white, brown and "wild" or Indian rice.

CURRENT LITERATURE

American Journal of Digestive Diseases and Nutrition

Vol. 2, July, 1935

* Protection of nutrition during the use of "elimination diets". A. H. Rowe.—p. 306.
* Passage of native proteins through the normal gastro-intestinal wall. Editorial.—p. 324.
* Insulin-glucose therapy in heart disease. E. S. Nichol.—p. 236.
* Acid-base value and assimilability of fruit juices. I. N. Kugelmass.—p. 242.

ELIMINATION DIETS. Diet deficiencies are not likely to occur if the suggestions and detailed menus for the "elimination diets" given by Rowe are accurately followed. There should always be an adequate intake of proteins, calories, vitamins and minerals in the "elimination diet". If milk, eggs and fish are omitted from the diet, then meat should be taken in liberal amounts. With a diet free of milk, calcium carbonate may be used to prevent a deficiency of calcium.

PASSAGE OF NATIVE PROTEINS THROUGH THE NORMAL GASTRO-INTESTINAL WALL. During the digestion of proteins, certain of the soluble albumins and globulins, particularly those which are consumed raw, will at times escape digestion and enter directly into the blood stream and there act as totally foreign substances to give rise to a group of allergic syndromes such as prurigo, urticaria, eczema, angioneurotic edema, asthma, and gastro-intestinal disturbances such as vomiting, diarrhea and colic. Some investigators have placed migraine, certain occular disturbances, and even epilepsy in this category. Using human subjects, Ratner and Gruehl found evidence to indicate that proteins from foods such as cottonseed, which are foreign to the diet, and even milk, can enter the circulation. This occurred in normal and allergic patients alike and in adults as well as children. The body is provided with certain defensive measures which tend to impede the entrance of proteins in an unchanged state into the blood stream and tissues. When this defense mechanism fails to act, and antigens enter the blood stream in large amounts, disease-producing hypersensitiveness may result.

INSULIN-GLUCOSE THERAPY IN HEART DISEASE. The use of insulin is not an empiric treatment in heart disease but is based upon physiological evidence that this procedure improves the nutrition of the myocardium. In a group of 20 patients with heart disease, 50 per cent improved with the use of insulin in association with a high carbohydrate diet and extra feedings of glucose. The benefit derived in cardiac patients is due not only to improved nutrition of the myocardium, but may be due in part to improved digestive functions and elevation of the general mental attitude of the patients.

ACID-BASE VALUE AND ASSIMILABILITY OF FRUIT JUICES. Fruit juices are buffer salt solutions whose utilization is favored by their acidity. The dissolved sugar in fruit juices is the most readily absorbed constituent, while the base-forming elements are the slowest to be absorbed.

American Journal of Diseases of Children

Vol. 49, June, 1935

Treatment of infantile scurvy with cevitamic acid. E. Goettch.—p. 1441.
Clinical manifestations of calcium deficiency in infancy and in childhood. H. T. Nesbit.—p. 1449.
Allergic eczema. Eczema initiated by sensitization to foods. J. G. Hopkins and B. M. Kesten.—p. 1511.

CEVITAMIC ACID. The treatment of infantile scurvy with cevitamic acid was at least as effective in four infants as orange juice therapy in the controls. There were no untoward reactions following massive doses of 400 mg. of cevitamic acid given intravenously to infants. A single massive dose of the acid given in pure form or as orange juice appears to favor healing of infantile scurvy as effectively as would the same total dose given in small daily portions over a period of eight days.

American Journal of Nursing

Vol. 35, July, 1935

• Poisonous mushrooms. V. Lewitus.—p. 641.
Teaching methods. R. Sleeper.—p. 658.

POISONOUS MUSHROOMS. The chief points of difference between the edible table mushroom and the poisonous species are not always easy to determine. The poisonous variety usually has a death cup, white spores which may be seen under a microscope and white gills, while the edible mushrooms have pink or brown gills, spores of purplish-brown, and lack death cups.

American Journal of Public Health

Vol. 25, July, 1935

• Significant aspects of a recent official survey concerning the household use of milk in Philadelphia. S. Egbert.—p. 789.

HOUSEHOLD USE OF MILK. A comprehensive study of the household consumption of milk in Phiadelphia during the summer of 1934 revealed a drop in the daily fluid milk consumption per capita of 11 per cent in 5 years. It was found that many adults drink milk for its health value but 75 per cent drink it because they like it. On the other hand, of the reasons given by adults for not drinking milk, 49 per cent were because of a dislike for it, 33 per cent because it cost too much, and 9 per cent because it was thought to be too fattening. Between 80 and 90 per cent of the children between the ages of 1 and 10 years drank milk regularly. Undoubtedly the financial depression is a major reason for the lessened demand for milk.

American Journal of Physiology

Vol. 112, June, 1935

• Effect of a diet poor in salts upon the growth and composition of the incisors of the rat. M. F. Clarks and A. H. Smith.—p. 286.
• Weight loss changes during muscular work following food ingestion. C. I. Hovland.—p. 307.

Vol. 112, July, 1935

• The disappearance of digestive inhibition with the repetition of exercise. F. A. Hellebrandt, E. Brogdon and S. L. Hoopes.—p. 442.
Observations on the variation in water content of the fecal material along the colon. F. R. Steggerda.—p. 559.
• Carbohydrate changes during recovery from muscular contraction. J. Sacks and W. C. Sacks.—p. 565.

EFFECT OF A SALT-POOR DIET UPON THE INCISORS OF THE RAT. Rats 35 days of age were fed diet in which the limiting factor was lack of mineral salts. The fresh weight of the incisors was affected less than one would expect, judging from the general effect on body weight. The ash of the incisors is relatively stable compared to that of the bones: ash is deposited in the growing incisors while it is withdrawn from the bones, under the adverse dietary conditions used in these experiments.

WEIGHT LOSS CHANGES DURING MUSCULAR WORK FOLLOWING FOOD INGESTION. Weight loss was recorded during the performance of finger oscillation following the ingestion of large and small meals. Efficiency, judged by the increment of weight loss during work as compared to the loss during relaxation, appears better after a light lunch, the advantage being greatest in the earlier part of the afternoon immediately after eating. Maximum efficiency is found in the late afternoon, about four hours after eating.

DISAPPEARANCE OF DIGESTIVE INHIBITION WITH REPEATED EXERCISE. Experiments on the effect of exercise on gastric secretion were performed on healthy young adults. It was concluded that very severe and exhaustive exercise can be performed without suppressing the acid secreting mechanism of the stomach.

CARBOHYDRATE CHANGES DURING RECOVERY FROM MUSCULAR CONTRACTION. The entire amount of lactic acid formed during anaerobic activity in muscle diffuses into the blood stream during recovery and is not changed to glycogen. It was shown that the "Meyerhof cycle" is of no significance in recovering mammalian muscle. The rate at which the hexosephosphate, formed during muscle contraction, is resynthesized to glycogen, is practically constant throughout the recovery period.

American Journal of the Medical Sciences

Vol. 190, July, 1935

• A study of the value of insulin in undernutrition. R. H. Freyberg.—p. 28.

VALUE OF INSULIN IN UNDERNUTRITION. No appreciable benefit occurred in 8 of the 9 patients studied, who were injected with insulin without knowing what medicine was being given or why it was administered. Improvement resulted in many patients from the suggestion accompanying injections. This indicated that much of the benefit commonly attributed to insulin is due to a psychic factor. This investigation fails to support the prevalent opinion that insulin is a valuable aid in the treatment of undernutrition.

Annals of Internal Medicine

Vol. 8, June, 1935

The present status of the problem of "rheumatism"; a review of recent American and English literature on "rheumatism" and arthritis. Part III. P. S. Hench, W. Bauer, A. A. Fletcher, D. Gilchrist, F. Hall and P. White.—p. 1673.

Archives of Pediatrics

Vol. 42, June, 1935

* The treatment of enteritis in infants and children with raw apple diet. J. Giblin and M. D. Lischner.—p. 355.
* Carotene in prophylactic pediatrics. A. S. Sandler.—p. 391.

TREATMENT OF ENTERITIS WITH RAW APPLE DIET. During the war it was observed that raw apples caused an alleviation of diarrhea within 24 hours. Many theories have been advanced in support of the therapeutic value of apples. These benefits may be due to the astringent action of tannic acid, the malic acid, and the mechanical cleansing action of the scraped apple. One hundred and thirty cases of enteritis in infants and children, ranging from one month to eight years in age, were treated with scraped raw apple with only one death. One to four tablespoons of ripe raw grated apple (including the skin) were given every two hours, day and night, for 48 hours. Nothing else was given by mouth except weak tea or water in small amounts. A transition diet, consisting of cereal, cocoa, toast, rice, soup, potato gruel, scraped beef, tea, cottage cheese and banana, was then given for 48 hours. Boiled milk, vegetables and stewed fruits were gradually added.

CAROTENE. A group of 53 chidren living in an orphanage were used as subjects for this 10 months' study. It was concluded that carotene in oil is of distinct value in the management of infants and children and that it definitely increases resistance to upper respiratory infections and perhaps to infections in general. Carotene influences favorably the blood hemoglobin, particularly at a time of year when the trend is a diminution of the amount of blood hemoglobin.

Journal of the American Medical Association

Vol. 104, June 1, 1935

* An evaluation of dinitrophenol as an aid in weight reduction. J. M. Strong and F. A. Evans.—p. 1957.

Breast and artificially fed infants. A study of the age incidence in the morbidity and mortality in twenty thousand cases. C. G. Grulee, H. N. Sanford and H. Schwartz.—p. 1986.

Definition of allergic diseases. Editorial.—p. 2000.

Vol. 104, June 8, 1935

* Foods that commonly disagree with people. W. C. Alvarez and H. C. Hinshaw.—p. 2053.
* Gout: Changes in symptoms and purine metabolism produced by high fat diets in four gouty patients. L. M. Lackie and R. S. Hubbard.—p. 2072.
* Soy bean milk in nutrition. Editorial.—p. 2098.

Vol. 104, June 15, 1935

* Nutrition and the future of man. J. S. McLester.—p. 2144.

Vol. 104, June 22, 1935

Hyperparathyroidism: clinical picture in the far advanced stage. A. J. Quick, A. Hunsberger, E. L. Eliason and H. Hunson.—p. 2248.

The physiology and principal interrelations of the thyroid. D. Marine.—p. 2250.

Vol. 104, June 29, 1935

* The pathogenesis and prevention of simple or endemic goiter. D. Marine.—p. 2334.

Vol. 105, July 6, 1935

* Functional changes in liver heart and muscles and loss of dextrose tolerance resulting from dinitrophenol. C. M. MacBryde and B. L. Toussig.—p. 13.

Therapeutics of the thyroid. J. H. Means.—p. 24.

Mushroom poisoning. Editorial.—p. 34.

*Dermal absorption of vitamin D. Current comment.—p. 36.

Vol. 105, July 13, 1935

* Fat absorption. Editorial.—p. 122.

Effects of emotional excitement. Editorial.—p. 123.

DINITROPHENOL IN WEIGHT REDUCTION. The removal of fat deposits is dependent on the creation of a deficit between the daily intake and the daily output of energy. This deficit can be obtained either by a reduction of intake or by an increase of output. In a group of 6 patients, dinitrophenol produced an increase of oxygen consumption of approximately 20 per cent. Whether this disappearance of oxygen is a reflection of increased heat production, or whether there is an alteration in the normal oxygen utilization due to toxic action of the drug, is not clear. It appears that there is a tendency of the body to store water under the influence of the drug. The influence of dinitrophenol on the negative energy balance is small in comparison to what can be secured by even moderate diets. The practical value of this drug as an aid in weight reduction is very questionable because of its toxicity.

FOODS THAT COMMONLY DISAGREE WITH PEOPLE. Five hundred intelligent patients, complaining of indigestion, were questioned about foods that they could eat only with ill effect. Many of the patients suffered after eating apples, onions, cabbage or milk. Other common offenders were chocolate, radishes, tomatoes, cucumbers, eggs, fats, cantaloupe, beef, strawberries, coffee, lettuce, dried beans, cauliflower, melons, pork, corn and pickles. Seven patients in 100 were unable to drink milk because the resultant distress was so severe; three in 100 could not eat eggs. A number of patients with migraine had recognized a connection between the headache and the eating of certain foods such as chocolate, onion, milk, peanuts, cabbage, and eggs. Transient urticaria was commonly ascribed by the patients to the eating of strawberries, tomatoes, eggs, fish, milk and chocolate. Onions, cabbage, raw apples, and radishes were rated above beans as makers of gas. Milk also was a common offender. The idea today is not to warn only against greasy foods or to hand out a ready-made diet list, but to fit the diet to the individual.

GOUT. The development of joint symptoms, following the ingestion for several days of a diet high in fat and low in carbohydrate and protein, may serve as a useful test in the differential diagnosis of gout. However, such diets should be avoided in the treatment of patients with gout.

SOY BEAN MILK. Recent reports of the use of soy bean milk indicate that this food is a satisfactory product for infants. Animal experiments have demonstrated the adequacy of soy bean powders in nutrition, particularly with respect to supporting normal growth, hemoglobin formation and the production of normal bones. The soy bean is probably destined to assume a rôle of importance in infant nutrition.

NUTRITION AND THE FUTURE OF MAN. Man's place in the future will depend in no small degree on the food he eats. Improvement of the stock as a result of betterment of the diet has been observed repeatedly both in the lower animals and in man. Chinese, living under improved nutritive conditions in Hawaii, grow to a greater stature than people of the same racial strain in China, and their growth continues to a more advanced age than does the growth of those remaining in the less hospitable homeland. Improvement in a diet will often result in a higher degree of development. In the past, science has conferred on those peoples who availed themselves of the newer knowledge of infectious diseases better health and a greater average length of life. In the future, it promises to those races who will take advantage of the newer knowledge of nutrition a larger stature, greater vigor, increased longevity and a higher level of cultural attainment.

ENDEMIC GOITER. In recent years, vitamin deficiencies have been brought forward as causal factors in goiter but there is no evidence that a vitamin deficiency plays any primary rôle. Deficiencies of vitamin B complex and vitamin C are contributing factors. Iodine is effective in the prevention of goiter when administered in any form and by any means. Historically, iodine-containing salt was the first means of administration

and since 1920 has been the most practical prophylaxis.

FUNCTIONAL CHANGES. Dinitrophenol in small doses caused functional changes indicative of toxicity in liver, heart and muscles in a large percentage of patients in whom no special idiosyncrasy was noted. It also produced a loss of dextrose tolerance.

DERMAL ABSORPTION OF VITAMIN D. The dermal administration of viosterol to the rachitic control animals promptly promotes normal bone calcification. Thus it appears probable that vitamin D is absorbed directly from the skin. The practical value of this method of administering vitamin D remains to be determined. It may prove useful in infants and in subjects lacking the ability to utilize lipids administered orally.

FAT ABSORPTION. The manner in which fats are absorbed from the alimentary canal has long been a controversial subject. Patients with definite disease of the liver show an absorption curve distinctly different from the normal. This denotes a diminished and delayed absorption of fat. The quantity of fat in the blood at a given time depends upon the rate of uptake from the alimentary tract and the rate of deposition of the absorbed material in the body cells.

Journal of Biological Chemistry

Vol. 110, June, 1935

* The metabolism of sulfur. XXII. The cystine content of the hair and nails of cystinurics. H. B. Lewis and L. Frayser.—p. 23.
* The effect of exercise on the excretion of uric acid. A. J. Quick.—p. 107.
Pigments of pink grapefruits citrus grandis. M. B. Matlack.—p. 249.

Vol. 110, July, 1935

* Composition of cartilage, bone, dentin and enamel. M. A. Logan.—p. 375.
* Lactose in the plasma of pregnant and lactating women. R. S. Hubbard and H. J. Brack.—p. 411.
* The availability of calcium from some typical foods. M. L. Fincke and H. C. Sherman.—p. 421.

CYSTINE CONTENT OF HAIR AND NAILS OF CYSTINURICS. The analyses of the nails and hair of cystinuric individuals, both children and adults, have shown no evidence that the excretion of cystine by the kidneys influences the cystine content of the hair and nails.

EFFECT OF EXERCISE ON THE EXCRETION OF URIC ACID. Strenuous exercise markedly diminishes the excretion of uric acid without affecting the output of creatinine. Possibly this retention of uric acid during exercise is the overproduction of lactic acid, since even the ingestion of this compound brings about a decrease in the output of uric acid.

COMPOSITION OF CARTILAGE, BONE, DENTIN AND ENAMEL. The magnesium content of dentin is higher than that of enamel or bone, but the carbonate content of bone is higher than that of enamel or dentin. The conversion of cartilage to organic matrix of bone is characterized by loss of organic sulfates and gain of nitrogenous constituents.

LACTOSE IN PLASMA OF PREGNANT AND LACTATING WOMEN. A study of the concentration of lactose in human plasma showed that lactose is either absent from, or present in minute quantities in all specimens from normal subjects and pregnant women. However, the blood from lactating women during the first part of the puerperium contained approximately 2 mg. of lactose per 100 cc. of plasma. Since the urine of most of these lactating women contained an unusual amount of sugar, commonly believed to be lactose, the renal threshold for that sugar must be very low.

AVAILABILITY OF CALCIUM FROM SOME TYPICAL FOODS. Healthy young rats were placed on a diet in which practically all of the calcium was supplied by skim milk, or diets in which half of the skim milk was replaced by enough dried spinach or dried kale to provide the same amount of calcium. After 32 days the animals were killed and their bodies were analyzed for calcium. The calcium of the kale was nearly as well utilized as the calcium of the milk but the calcium of the spinach was poorly utilized, if at all. Perhaps the oxalate in the spinach is responsible for the poor utilization of calcium.

Journal of Nutrition

Vol. 9, June, 1935

* Utilization of meat by human subjects. II. The utilization of the nitrogen and phosphorus of round and liver of beef. Z. Long and M. S. Pittman.—p. 677.
* Utilization of meat by human subjects. III. The utilization of the nitrogen and phosphorus of beef heart. B. L. Kunerth, I. M. Chitwood and M. S. Pittman.—p. 685.
* The nutritive value of lactose in man. A. E. Koehler, I. Rapp and E. Hill.—p. 715.

Vol. 10, July, 1935

* Factors affecting the carotene content of alfalfa hay and meal. H. R. Guilbert.—p. 45.
* The effect of retarded growth upon the length of life span and upon the ultimate body size. C. M. McCay, M. F. Crowell and L. A. Maynard.—p. 63.
Editorial review. The chief sulfur compounds in nutrition. H. B. Lewis.—p. 99.

PHYSIOLOGICAL UTILIZATION OF ROUND AND BEEF LIVER. Three young women apparently used the nitrogen of round of beef fully as well as that from liver of beef, as indicated by almost identical coefficients of digestibility and slightly more favorable nitrogen balance during the period round of beef was eaten. The phosphorus balance was but little lower, although the diet during this period supplied less than two-thirds as much phosphorus.

PHYSIOLOGICAL UTILIZATION OF BEEF HEART. Four college women seemingly used the nitrogen of beef heart at least as well as that from beef round, as indicated by practically identical coefficients of digestibility and losses of urinary nitrogen. Differences in utilization of phosphorus from the two meats, which were also in favor of beef heart, were not great and probably were also due to the level in the diet.

NUTRITIVE VALUE OF LACTOSE. The average blood sugar values in 16 normal adults, after ingestion of 1.5 gm. of lactose per kilogram of body weight, showed no important changes, although considerable individual variations were noted. The secondary hypoglycemic effects were lacking. There was frequently a lactosuria present. The average blood sugar values in sixteen obese individuals showed a slight but definite elevation after lactose ingestion.

CAROTENE CONTENT OF ALFALFA HAY AND MEAL. The vitamin problem in alfalfa is essentially a carotene problem. It was found that the variability in carotene content of alfalfa hays and meals is so great that no sweeping generalities can be made regarding the relative values. Those buying alfalfa as a source of vitamin A would do well to purchase it on the basis of the carotene content.

EFFECT OF RETARDED GROWTH UPON THE LENGTH OF LIFE AND ULTIMATE BODY SIZE. Rats were retarded in growth and not allowed to attain maturity until after periods of 766 and 911 days. The rat body still retained the power to grow at these extreme ages. After such periods of retardation the rat cannot attain a body size equal to that of an animal that reaches maturity at a younger age.

Modern Hospital

Vol. 44, June, 1935

* Results of malnutrition as seen at a county hospital. M. E. Kalsem.—p. 84.
Individual menu service checks food complaints. B. Stark.—p. 90.
No. 12. Vegetable garden salad. A. Shircliffe.—p. 92.
* Serving foods at the right temperature. Editorial.—p. 94.
July breakfast and supper menus. E. L. Anderson.—p. 96.

Vol. 45, July, 1935

Choosing the dietary personnel. I. Hug.—p. 88.
No. 13. Serpentine salad. A. Shircliffe.—p. 90.
Small hospital dietitian counsels the community. R. N. Nickum.—p. 90.
Using psychology in dealing with help. F. Staples.—p. 92.
Decreasing food waste. E. Cole.—p. 94.
August breakfast and supper menus. H. E. Gilson and Staff.—p. 96.

RESULTS OF MALNUTRITION. The number of cases of malnutrition in Cook County Hospital, Chicago, has increased each year since 1930, excepting 1933. The increases in 1935 were double those of the preceding five-year period. Cases of pronounced scurvy were about the same, those of pellagra a little less, but the cases of general malnutri-

tion increased. There is a general lack of adequate knowledge of the essentials of a balanced diet among the patients. Three interesting cases of malnutrition are discussed.

SERVING FOODS AT THE RIGHT TEMPERATURE. Dr. Samuel Renshaw of Ohio State University reports that the taste of food and drinks is greatly affected by temperature. He states that at a neutral temperature approximately that of the body, tastes diminish considerably. Hot drinks should be served at a temperature of 132°F. and cold drinks at about 59°F. They are most enjoyed at these temperatures because the sense of taste is more keen. The dietitian would do well to concentrate on the temperature at which food is served.

INSTITUTIONAL MANAGEMENT

The American Restaurant Magazine

Vol. 18, June, 1935

* Justice for the industry? C. A. Patterson.—p. 23.
* What about the sales tax? Kenneth C. Lovgren.—p. 24.
* Applying the streamline idea to restaurants. H. E. Siekman.—p. 26.
Restaurant operating costs. Horwath & Horwath.—p. 29.
* Long profit menu items. Helen Ewing.—p. 31.
Air conditioning builds patronage. T. F. Marshall.—p. 34.
* Weight reduction menus as a source of profit. Redmon B. Davis.—p. 38.
The new sanitation bill for Colorado.—p. 40.
* The fly: public enemy no. 1. H. C. Nulmoor.—p. 41.
Dividends of cleanliness-profits and health. Helen B. Ames.—p. 48.
Innovations in equipment.—p. 54.

Vol. 18, July, 1935

* Knowing your food costs. C. A. Patterson.—p. 17.
* Summertime dishes that bring handsome profits. Helen Ewing.—p. 19.
Some unusual foods and personalities. Verna L. Miller.—p. 22.
* The Eitels do it again. Kenneth C. Lovgren.—p. 26.
Restaurant operating costs. Horwath & Horwath.—p. 32.
Innovations in equipment.—p. 50.

LEGISLATIVE JUSTICE. Pending laws affecting the restaurant business necessitate the presence of operators in legislatures to defend their own interests.

SALES TAX. A survey on the problems arising from the passage of sales tax laws has been made by Mr. Lovgren. Fourteen states have a sales or gross income tax varying from 1 to 3% which in all cases applies to the sale of food-stuffs in restaurants. Six other states are actively working against or have successfully defeated similar legislation while the constitutionality of the sales tax bill is being tested in the courts of still two other states. The survey showed business adversely affected by the tax in 4 states. The need for standardization and uniform action by the restaurant industry is evident.

STREAMLINE RESTAURANTS. The W. O. Wheeler restaurants in Indianapolis serve a meal every 32 seconds as a result of their complete renovation and modernization throughout their dining rooms and kitchens. Labor costs are kept at 19% by means of an effective chart device that adjusts hours of labor bought to volume of patronage served. The novel use of a revolving menu rack containing hundreds of menu suggestions, each item followed by the price at which it must sell if it is to be included on the day's menu, illustrates the value of accurate data wisely used. Regular reports, rigid food cost control, good service and pleasant dining rooms all contribute to Mr. Wheeler's success.

LONG PROFIT MENU ITEMS. Dozens of plate luncheons are presented here which can be sold profitably providing they are skillfully prepared, carefully served and intelligently merchandised. Miss Ewing's recipes and menu suggestions are designed to create real appetite appeal and the ultimate in customer satisfaction.

REDUCING MENUS. Catering to the obese can be made a profitable practice. Both customer good will and profit for the restaurant can be secured easily by offering menus planned according to sound dietetic principles for reducing weight. The author

bases his convictions upon the results of the intensive studies on high protein reducing diets just completed by Dr. Leo K. Campbell of Rush Medical College, Chicago.

THE FLY. Mr. Nulmoor gives several suggestions for ridding restaurants of flies. Among those deserving mention are the use of the "electric screen" which electrocutes flies and other insects touching it; the mechanical spray, which plugs into an electric light socket to utilize the application of the steam vaporization principle, used in early morning or late evening. Prevention of the presence of flies is secured by spotless cleanliness, covered food displays, proper ventilation or air conditioning and adequate screening.

FOOD COSTS. Mr. Patterson's editorial stresses the imperative need for food control.

SUMMERTIME DISHES. Here are some more valuable suggestions for serving old foods in new ways and some hot weather menus with appetite appeal. Also included are some practical tips on how to make successful fruit pies.

THE EITELS DO IT AGAIN. Hundreds of ideas gathered from a tour of famous eastern restaurants were incorporated in the building of the new Eitel restaurant in Chicago's financial district. Seafood, particularly lobsters, and brook trout are Eitel's specialties. They are cleverly merchandized by allowing the customers to select or catch their fish, if they wish, from the large display tanks. The decorative features and floor plans are fully described.

Buildings and Building Management

Vol. 35, June, 1935

* Records plus supervision equal lower costs. Editorial.—p. 24.
* The superintendent's position in building management. Editorial.—p. 27.
* Exhibit of office equipment aids in renting. J. E. Tufft.—p. 28.
A study of elevator traffic. D. W. Orth.—p. 30.
* Fuel-proof. C. D. Kyle.—p. 33.
* Step-by-step modernization keeps buildings young. Editorial.—p. 36.
* The fire hazards of "fireproof" buildings. H. E. Stevenson.—p. 38.
Elevators increase income of former "walk-ups". Editorial.—p. 43.
Artificial sunlight. Editorial.—p. 45.
Take the trouble spots first in planning modernization. Editorial.—p. 46.
* New products.—p. 56.

Vol. 35, July, 1935

* How to reduce heating costs. J. E. Seiter.—p. 28.
Limit on modernization loans raised to $50,000. Editorial.—p. 31.
* How to maintain floors. C. F. Gies.—p. 32.
The right of ownership. W. S. Schmidt.—p. 35.
Real estate financing. Garrison, Smith and Smith.—p. 37.
* Air conditioning for office buildings. E. B. Murray.—p. 40.
Property management policies of insurance companies. D. C. Mahoney.—p. 44.

RECORDS PLUS SUPERVISION. Cleaning costs approximate one-third of all building maintenance expenses. The installation of simple records for controlling cleaning and replacement service in the Public Ledger Building, Philadelphia, not only lowered expenses by cutting the detergent bill in half, but also improved the quality of work, increased employee efficiency and tenant satisfaction. Apart from requisitions, only 8 simple records were needed to give the manager a complete daily and monthly picture of conditions in the building. The forms are pictured and their value in effecting close control is explained. The data thus filed proved invaluable in the compilation of annual reports.

SUPERINTENDENT'S POSITION. The fundamental principles regarding the relationship between the management, the superintendent and the employees are outlined as drawn up by the Realty Advisory Board on Labor Relations, Inc. of New York for the members of the Management Divisions of the Real Estate Board of New York, Inc. The outline provides valuable source material in interpreting sources of personnel problems.

EXHIBIT AIDS IN RENTING. Merchandising a new commodity, office modernization, has been initiated by the rental agent of the I. N. Van Nuys Building in Los Angeles. Space for 3 grades of office suites is furnished free by the building; non-competitive office sup-

ply concerns furnish the offices; a trained salesman demonstrates the equipment and creates interest in the principles and possibilities of office modernization. The benefits of such a plan as this lie in the possibility of future business. This new advertising scheme has been very successful.

FUEL. Mr. Kyle describes, step by step, the procedure by which a heating system was modernized yet service was not disrupted. The first report describes the preliminary analysis of the heating problem; the second deals with the installation and the results obtained. The installation of the control equipment was made in the following sequence: placing of differential pressure type zone valves, installing pilot air valves with relays and control panel for operators, then the thermostats for night control and finally thermostatic operating units. The article is illustrated with interesting consumption and cost records showing that the savings, since installation in February, average more than 35%.

MODERNIZATION. The Hospital Trust Building in Providence, R. I. shows how a constant modernization program can be operated with economy, citing their success with elevator, heating and ventilation installations. The building was thereby kept out of the obsolete class and improvements were accomplished with a saving in labor and operation costs and carrying charges. Best of all, their long range planning resulted in retaining valuable tenants and in securing many new ones.

FIRE HAZARDS. Mr. Stevenson says "that no building is any more fireproof than its contents" and that 43 out of every 100 fire victims go out of business because of intangible losses which were not or could not be insured, such as loss of rentals from tenants. The need for prompt fire protection is pointed out, since 9 out of 10 bad fires result from belated discovery. The description of three modern safeguards against fire that discount human negligence is well worth studying. They are central station automatic sprinkler supervision, outside supervision of the night watchman and central station fire detection devices.

NEW PRODUCTS. This section gives brief descriptions of new equipment and new products useful for maintenance departments. Managers of office and department buildings, and in a number of instances the heads of residence halls of colleges and universities would find it helpful to keep in touch with new developments herein noted.

REDUCED HEATING COSTS. Mr. Seiter tells how money can be saved and satisfaction can be increased by modern temperature control. Modern heating methods have reduced steam consumption for heating from 600 pounds per square foot of radiation per year for average weather conditions to nearly 300 pounds. Causes of heat loss are enumerated, and scientific corrections given for them. The table of "General Rules for Economical Heating" is thought-provoking.

FLOORS. Condensed procedure for the cleaning and caring of 12 kinds of floors and floor coverings are given. The best cleansing agents as well as the cleaning and treatment specific for each type of floor is explained.

AIR CONDITIONING. In addition to the advantages and the future demands for air conditioning, Mr. Murray describes the types of equipment on the market, the means by which a layman can be guided in choosing the type he needs and rules by which to determine the approximate requirements and costs.

The Horwath Hotel Accountant

Vol. 15, June, 1935

* The trend of business in hotels. Editorial.—p. 3.
* Facts. E. C. Romine.—p. 4.

Vol. 15, July, 1935

* The trend of business in hotels. Editorial.—p. 3.
* Rates must be stabilized. E. C. Romine.—p. 4.
* Food cost and control for clubs. J. N. Horwath.—p. 6.
* Standards in restaurant operation. W. Knop.—p. 6.

Ratio of bad debts to sales. Editorial.—p. 7.

* Night clerk manipulates transcript. Editorial.—p. 7.

SALES, RATES, AND OCCUPANCY. The total sales (room and restaurant) and occupancy in April are above the level for the corresponding month last year. The rate increase was smaller than heretofore. The increase in rates needed to offset the increase in operating expenses is proving impossible because of the competition and lack of cooperation among the hotels. Wholesale market prices show an increase of 22% above the level of March 1934; although the rise in food cost/dollar sale in hotels was kept at only 1% for the same period. Statistics show that 33 out of 100 hotels managed to lower their food costs by reducing their portions, adjusting their menu prices, and using less expensive garnitures.

FACTS. Mr. Romine shows through the use of nation-wide statistics that hotels have as heavy fixed charges as railroads, and that the financial condition of hotel business is still alarming. Arguments are given against government regulation of hotels. The necessity for a hotel to have a profitable restaurant if it expects to meet even its taxes is carefully developed by this data.

SALES, RATES, AND OCCUPANCY. Seventy-four per cent of the hotels have a higher occupancy than in May. Rates are still unsatisfactory, although the small cities are stabilizing their rates more quickly than the large ones. There has been an average decrease of 35% on the total sales from the same months 6 years ago. Food costs/dollar sale in the hotel have increased only 3%, while food costs as shown by the wholesale food price index, increased 28% over April 1934.

STABILIZING RATES. A study of 81 hotels shows the average ratio of earnings to taxes was only 140%. A hotel should have available for taxes, interest, and depreciation an amount at least 2½ times its taxes. People realize that prices are going up and expect a reasonable increase in hotel charges. This increase must come if hotels are to be in a position to earn even their taxes. A cut in rates does not increase patronage. It brings about a swapping of customers that sooner or later results in prices fixed at a lower level. This is dangerous since hotel rates need to be increased to compensate for the increase in their operating costs.

FOOD COSTS. Food profit in a club should be carefully watched as an increase in operating costs in this department will mean an increase in members' dues and fees. Horwath suggests an increase in menu prices, the use of by-products, less expensive cuts of meat, specials, and a system of food control. He shows why over-production and regulation of employees' meals should be watched.

STANDARDIZATION. It is not only necessary to standardize service, appointments, public and employee relationships, but it also is well to standardize size and weights of the purchases, size of portion, selling price, and cooking of the food. It is suggested that each institution have a manual of its own with information of this type in it. Examples given of buying and price standardization would prove helpful to a dietitian assuming administrative responsibility for the first time.

CHECKING OF TRANSCRIPTS. After giving an example of a manipulation of a transcript, the following conclusion was drawn. All additions on the transcript should be proved. Records of departmental income should be checked daily with the vouchers as to the sequence and presence of all numbers. A record of arrivals and departures should be on file and checked daily with the housekeeper's reports, and the daily registrations. Statements should be sent a day after departure in the event a bill remains unpaid.

Hotel Management

Vol. 27, June, 1935

* Why hotels do not get the most out of convention business. Editorial.—p. 455
* Your money's worth in silverware. Editorial.—p. 463.
* Garnishing for sales appeal. G. C. Smith.—p. 491.
Dictionary of 1,001 menu terms.—p. 495.
Ideas from a thousand menus.—p. 496

Vol. 28, July, 1935

* How an unusual organization functions as a successful civic enterprise. V. F. Ludewig.—p. 11.
* Cashing in on the salad bowl. Editorial.—p. 45.
Dictionary of 1,001 menu terms.—p. 53.
Ideas from a thousand menus.—p. 54.

HOTELS AND CONVENTIONS. Hotels should take particular pains to control their daily operations to provide maximum convenience and comfort through superior service given to the members who have registered for the sessions. More care should be taken in perfecting all details beforehand which will insure quietness during lectures, perfect ventilation, air circulation, and acoustics, and the prominent display of a reliable bulletin of daily convention activities. Exhibitors should not be allowed to take materials down until after the last lecture. Professional association committees working directly with a hotel to complete their final convention plans will find this article helpful.

SILVERWARE. This first article in the series on purchasing explains the significance of first cost contrasted to ultimate cost of silverware as affected by its selection for usage, and distinguished quality. Definitions of trade terminology needed by the buyer are included.

GARNISHES. Garnishes should play an important part in increasing sales. Since we "eat with our eyes", we must make use of this idea. The garnish must add to the flavor of the dish, blend, in color and texture, be edible, and yet attractive and the cost be in keeping with the net cost of the dish it supplements. Numerous graphic illustrations and practical suggestions add to the value of the article.

THE KAHLER ORGANIZATION. This article challenges the imagination of all dietitians, because of their intimate knowledge of the famous Mayo Clinic. This organization is composed of 3 hotels, 2 hospitals, and 1 laundry. Its growth, as here outlined, is very striking. The personnel management rates highly due to its liberal vacation policy, its reward of employees for loyal and efficient service, in addition to insurance policies provided for them.

SALAD PLATES. Records show a noticeable consistent yearly increase in sales of salads and salad plates/capita over that shown for 1925. Salad plates are profitable, because of the low initial food and preparation costs. Salad combinations are made and served more quickly than hot dishes. Dishwashing is simpler, and in most cases fewer dishes are used. It takes less time to eat the salad and therefore the seat turnover is increased. Many suggestions and pictures of salads and salad plate combinations are given in this section to tempt the manager who is alert to trends in customer eating habits.

The Hotel Monthly

Vol. 43, June, 1935

*How one room becomes an apartment. Editorial.—p. 9.
The newest in railroad dining cars. Editorial.—p. 24.
How many different things does a hotel housekeeper supervise and check for proper completion of work? Editorial.—p. 30.
* Carpeting as an element in decoration. Editorial.—p. 33.
* The history of American cookery. A. Shircliffe.—p. 39.
* How we are building a financial plan. H. E. Holt.—p. 51.
* Comparative engineering statistics. G. C. St. Laurent.—p. 54.

Vol. 43, July, 1935

* Chicago's newest loop restaurant. Editorial.—p. 8.
* Simplifying the housekeeper's records.—p. 21.
* Economical ice cream production. E. H. Handy.—p. 34.
* One of the earliest restaurant menus. A. Shircliffe.—p. 38.

ONE ROOM APARTMENT. The modern trends in decoration and furniture arrangement attempt to make the one room hotel bedroom acquire the aspect and convenience of a whole apartment. Beds can be remodeled into couches and tables built into utilitarian cabinets. Pleasing originality and "hominess" can be effected by the clever use of subdued modernistic furniture and furnishings. A dietitian whose salary is partly represented by "living in" accommodations may learn here how to create a new atmosphere for herself during off duty hours.

CARPETING. Lokweave, a new development in floor coverings has opened the door to greater decorative possibilities for hotels at lower costs. The major economy is minimum waste in fitting a floor space, since the strips are sold in multiples of 9″ instead of 27″. It is possible to cut Lokweave, which has no pattern, into any size or shape and join it to other pieces so securely that the seam is invisible. The problem of covering irregularly shaped rooms, patching burns or worn places is solved.

AMERICAN COOKERY. American cookery of today is not, according to Mr. Shircliffe, a fusion of all European cookery. The various nationalities have imparted many changes to the once typical American dishes, but the original dish is as truly American as corn is an American food. The gumbo dishes, chowders, scrapples, peanut hams, yams, Maryland fried chicken, pepperpots, baked beans, Boston scrod, Baltimore terrapins, sand dabs, red snapper and numerous others are true American dishes. The Waldorf Astoria Hotel has tried to revive a few of those forgotten dishes by creating a department of American cookery. Their recipes for chicken gumbo soup, Philadelphia scrapple, chicken Maryland and New England boiled dinner are included. A dietitian, Mrs. Rebekah Hufcut, Columbia University graduate, has been supervisor of the "Home Kitchen" since its inception in 1932. The products of their Home Kitchen are attractively presented in an illustrated booklet "Home Cooking in the Waldorf Astoria". The foreword reads: "The success of some home cooked dishes is their long, slow cooking. Their charm lies in the blending of flavors which comes only with time. Your choice of dishes selected from this booklet will be prepared expressly for you, so please place orders in ample time." The list of suggested food combinations that follows ends with a notice to the effect that "special diets for invalids and children are given adequate attention under the supervision of the medical staff and dietitian."

FINANCIAL PLAN. A budget or financial plan may serve 2 purposes: a forecast of expenses and income; and a basis by which actual performance can be measured. To make it practical, the master budget, which is the yearly estimate compiled monthly from past records, must be broken down into monthly and daily estimates used as a constant running check on income and expense. The success of a budget is not judged on how close it comes to final operating results, but that the business does have a plan which can be broken down so that individuals know what is expected of them in producing financial results.

ENGINEERING STATISTICS. This paper represents a pointed discussion of the obligations imposed upon the engineering department of large hotels to prepare helpful and interesting information for the management with respect to the *reasons for* larger or fluctuating engineering costs; such as, fuel, steam, electric, current, water, engineering supplies and payroll. Dangers are inherent in attempting to provide comparative statistics of engineering costs.

CHICAGO'S NEWEST RESTAURANT. The Eitel Brothers have recently opened a restaurant in the Field building, the largest office building in the world. Many pages are devoted to a description of this ultra-modern restaurant, showing plans of the 3 floors and illustrations picturing the several dining rooms and kitchens. The layout was specially designed to facilitate service and speed up business turnover. From 2000–2500 people are served daily. Expert advice was asked for the general plans, decoration and equipment arrangement, and as a result every applicable new development in the restaurant industry has been utilized.

SIMPLIFIED RECORDS. The hotel housekeeper's job is to keep the house clean, orderly and presentable for guests at all times. Mrs. Georgia Hunt of the International House uses the Bailey Book, a standard blank book designed for linen room control, for her records. In the left hand column she lists the room number and heads the others with the months of the year. This is repeated in as many sections of the

book as are required for the different records kept. Mrs. Hunt discusses the need for and suggests a schedule of various housekeeping jobs.

ICE CREAM PRODUCTION. Fruits, preserved fruits, juices, nuts, honey and sugar, salt, butter, condensed milk and milk powders are discussed in relation to ice cream production. A knowledge of these facts should help in the production of first quality ice cream.

AN EARLY MENU. Mr. Shircliffe's famous collection contains a French menu printed about 1798–1800 which conveys an idea of the food habits of the people who patronized these early restaurants, as well as the merchandising means used to present the dishes to the dining public. Dinners were priced then at so much a head and the manager must have anticipated modern trends when he initiated: "those who did not take wine or beer could have an additional meat, but if neither was desired the price remained the same."

The Personnel Journal

Vol. 14, June, 1935

* Good technique in negotiating. C. S. Slocumbe.—p. 42.
Regaining lost skill. W. H. Lang.—p. 55.
Antioch graduates hold their jobs.—p. 60.
* When students choose careers. B. F. Culver.—p. 64.

GOOD TECHNIQUE. An analytical study is made of well conducted bargaining conferences between employee and employer. The cornerstone of the management's policy is to consider completely and calmly every employee request. In many companies, management and men conduct joint negotiating conferences so badly that strikes result; the company methods reported here show an enviable record of smooth employee relations.

STUDENTS CHOOSE CAREERS. After a series of studies, Mr. Culver concludes that students with direct vocational interests are more definitely orientated with respect to their futures than those with derived interests. Students should be urged to plan their futures in the general occupational areas where they believe they will be the happiest and let anticipated remuneration and social prestige be a secondary consideration.

Restaurant Management

Vol. 36, June, 1935

Fountain lunch ideas.—p. 381.
* Historic background and localized name makes Monterey Inn an instant success. J E. Tufft.—p. 390.
* Garnishing for sales appeal. G. C. Smith.—p. 409.
Dictionary of 1,001 menu terms —p. 413.

Vol. 37, July, 1935

* Store personality attracts customers. H. B Neill.—p. 13.
Tea room ideas.—p. 17.
* Efficient waitress personal conduct on the job.—p. 22.
Dictionary of 1,001 terms.—p. 41.

MONTEREY INN. This inn has had capacity patronage from the very day of its opening. The answer, in addition to perfect food, is an historic atmosphere and background. The manager created a place named and furnished in keeping with the name of her street.

GARNISHING. As a quantity cooking research project, Miss Smith enumerates the purposes of a garnish and their uses. A little study of the extensive scope of garnish possibilities and of new treatments of them should prove of considerable value in improving the appearance, flavor and popularity of any dish. A long list of garnishes is given.

STORE PERSONALITY ATTRACTS. The business policy of the Leighton Restaurant in New York is based upon the improvement of food quality, generous portions and watching food costs. To these cardinal principles of successful restaurant management, is added a plan of creating a specific and individualistic store personality.

EFFICIENT WAITRESS. This instructive list of do's and don'ts for waitresses is taken from the Ahrens manual "The Efficient Waitress." The service, appearance and personal conduct of waitresses stamp a food service as being high class or just one of the many. Besides impressing the public by waitress conduct, an intelligent employee finds work more profitable where it is done properly.

ASSOCIATION PROGRESS

President's Message

In the July JOURNAL, we hope you were deeply impressed by the shadow cast of the coming Cleveland event in our Association year. The preliminary program which Mary Louise Bone gave you in such detail, must have awakened a desire in the heart of each one to meet with us during the last week of October.

Three activities listed on this program I particularly wish to call to your attention.

The first of these is the Annual Business Meeting held at 2:30 Monday afternoon. Your participation in the discussions at that hour will make you feel that you have a real part in the determining of the policies of our Association. This year our attention will be directed toward the revision of the constitution and by-laws. Will you not consider this a personal invitation to be at this meeting and give the Association the benefit of your best thought?

Another opportunity is offered each member at the Round Table Section meetings. Even if you have not actively worked on any committee this year, next year you may be situated so that you can. Come to these specialized group meetings with a contribution which will help the Association's work. Your presence will be an inspiration.

And then there are the teas, informal breakfasts, luncheons, and dinners. These give opportunity to meet and become acquainted with those who are doing a similar type of work to yours, and, better still, those engaged in dissimilar work. Real professional growth results from such associations.

Come join the happy throng at Cleveland!
—LAURA COMSTOCK.

Affiliation

In the past few years the precedent has been established of permitting the President-elect the opportunity to act as Chairman of Affiliation. In this position she has the opportunity to become acquainted with the activities of state associations and to learn something of their problems. It is a stimulating experience for her to see the growth of the Association, as evidenced by the formation of new state dietetic associations, and for her to feel the strengthening of the national organization through the close affiliation of these loyal groups throughout the country.

Greater uniformity of purpose has been accomplished by the almost universal adoption of the Constitution proposed by Miss Comstock last year. The cordial response of the officers and active members of the state associations is indicative of the possibilities of accomplishment for the profession. It is through these active state and local groups that programs of work are promoted and results attained.

A list of state dietetic associations now affiliated with the American Dietetic Association is published below. It is to be hoped that each year will see additional names until every state is represented.—KATHERINE MITCHELL, Affiliation Chairman.

Affiliated State Associations

1. ALABAMA, President, Esther Scott, Norwood Hospital, Birmingham
2. CALIFORNIA, President, Reeva Hinyan, California Hospital, Los Angeles
3. COLORADO, President, Ruby Kysar, St. Luke's Hospital, Denver
4. CONNECTICUT, President, Madeline Revare, Wm. Wirt Winchester Hospital, New Haven
5. DISTRICT OF COLUMBIA, President, Mildred E. Parker, St. Elizabeth's Hospital, Washington, D. C.
6. GEORGIA, President, Jessie Harriss, Emory University Hospital, Emory University
7. ILLINOIS, President, Elizabeth Tuft, Wesley Memorial Hospital, Chicago
8. INDIANA, President, Zelia Kester, City Hospital, Indianapolis
9. IOWA, President, Eunice Longworth, University Hospital, Iowa City
10. MARYLAND, President, Vera M. Stemple, 505 Regester Ave., Baltimore

11. MASSACHUSETTS, President, Maniza Moore, Boston
12. MICHIGAN, President, Margaret Ritchie, Battle Creek College, Battle Creek
13. MINNESOTA, President, Mabel Netz, University Hospital, Minneapolis
14. MISSOURI, President, Ethel Ollis, Research Hospital, Kansas City
15. NEBRASKA, President, Vesta Davis, St. Joseph's Hospital, Omaha
16. NEW JERSEY, President, Alberta Dent, N. J. College for Women, New Brunswick
17. NEW YORK, President, Grace Carden, Strong Memorial Hospital, Rochester
18. OHIO, President, Florence Bateson, Cleveland Clinic Hospital, Cleveland
19. OREGON, President, Mrs. Dorothy Keane, Doernbecher Hospital, Portland
20. PENNSYLVANIA, President, Emma Smedley, 821 Land Title Bldg., Philadelphia
21. RHODE ISLAND, President, Eleanor Wells, Y. W. C. A., Providence
22. TENNESSEE, President, Fairfax Proudfit, 1105 Peabody Ave., Memphis
23. TEXAS, President, Mary E. Smith, Memorial Hospital, Houston
24. VIRGINIA, President, Celia P. Swecker, Retreat for the Sick Hospital, Richmond
25. WASHINGTON, President, Alice Beaudreau, Providence Hospital, Seattle

Community Work for Student Dietitians

Last year we wrote of the opportunity which came for our student dietitians at Grasslands Hospital to have the experience of home visiting in coöperation with one of the public health nursing departments.

This year we were asked to coöperate with the county nutritionists in the extending of the work into several towns. The students spent a part of the time with the nutritionist in the Child Welfare Department with the "Mother's Allowance" families or "Widow's Aid" and part of the time with the nutritionist in the Home Relief Department.

In these classes they demonstrated the use of the federal food products which were being distributed at that time, as: canned meats, evaporated milk, rice, cheese and cabbage. They demonstrated some of these in the classroom and gave the mothers recipes of these and other combinations. Besides conducting the classes, they visited some of the mothers in the homes. In some of the families there was a moderate income, but the families failed to budget their money to the best advantage, usually due to ignorance of proper combinatons or knowledge of cooking.

Other students worked out costs of special diets in a low cost list, visited the food stores and made comparative food costs studies; planned a food budget for another year; and checked prices on food orders then analyzed for wise buying. This gave them the opportunity to show their application of food values to a minimum food budget.

The nutritionists were pleased with their work and appreciated their assistance. It enabled them to reach more families than they could have otherwise done. It is the first year they have worked with the county nutritionists and we are pleased with the results of their initial experiment and have been asked to continue it next year.—RHODA A. TYLER, Supervising Dietitian, Grasslands Hospital of The Westchester County Department of Hospitals, Valhalla, New York.

Finding Jobs For Student Dietitians

As Miss Martin, the dietitian, entered his office, Dr. Smith, superintendent of the hospital looked up from his work. "I find here the resignation of your assistant, Miss Jones," he said, "It will be a difficult task to find some one to fill that position as efficiently as she has for the past years."

"Yes, Dr. Smith, Miss Jones will certainly be missed in the department but she is getting a better position so we are glad of that. She has been an efficient and likeable person. I wish to fill this vacancy with one who is just as capable. I hear that institutions using the American Dietetic Association Placement Bureau are much pleased with its service. Unlike most placement bureaus, this organization has its central office in Chicago and a placement bureau chairman in each section of the United States with committee members in each state. These local committee members make a study of each position

brought to their attention; they carefully investigate its location, the organization offering it, the responsibilities of the job, and the opportunities for social life. Then from an accurate and up-to-date file of its members, the committee selects the applicant best qualified for the position, basing their judgment upon past professional record, education and personality traits. Because of their knowledge of both the position and the applicant, and their interest in the profession, I believe the American Dietetic Association Placement Bureau would be the best place to apply for an assistant dietitian to fill our vacancy here at the hospital."

"Miss Martin," said Dr. Smith, "the plan sounds most encouraging to me. Will you please file an application for an assistant dietitian, I know that I shall be satisfied."—EMALEEN GRAHAM, Medical College of Virginia, Hospital Division, Richmond.

The Need of a Project in Student Dietitian Courses

Few of us really stop to analyze the advantages of working out a project. Students are likely to think that it is just another thesis to test theoretical knowledge acquired in college. In a true sense, these projects may be considered as graduate work which guides toward original and constructive thinking and the solving of every-day problems of management and operation during the period of student training.

Responsibility for a project provides the student with the incentive to gain valuable information in the fields connected with her work. It teaches her how to organize, arrange and present her material in such a way as to be convincing, and also to anticipate all adverse arguments in advance so that the adoption of her plans or recommendations are assured and real achievement rewards her efforts. The development of this skill in each student proves invaluable to her in her professional conquest of the business or hospital world. Ability to write a concise report saves the time of busy executives. To write clearly and concisely requires much preparatory study and the collecting and evaluating of available data; thus a logical plan can be held and used to combat all arguments.

The data are obtained from different sources; books, equipment house data, magazines and stores are the main sources. This research work, in itself is an education, and broadens one's knowledge of the subject at hand. Data may also be obtained by making observations while working in the different departments. This trains one what to look for in relation to the routine of the day. The report must be complete in all respects, and be consistent with the organization.

Initiative is often buried under physical fatigue; the project gives the student tenacity of purpose and application in the conceiving of plans for the future, despite the demands made upon her by everyday routine. Training in application should give ability to create new ideas for the promotion of business, and habit thus formed is a decided investment toward professional advancement.

Group projects are also advantageous in that each activity shows a student's ability to gain the coöperation of the other participating students and demonstrates her possession or lack of leadership qualities—an important asset in the effective carrying out of new ideas.

A satisfactorily completed report, developed throughout the student year, keeps the student interested and always on the alert for new ideas.—K. LOUISE WEST, University of Toronto, 1934; student dietitian, Women's Educational and Industrial Union, Boston, 1935.

After Hours

One of the most dependable recreations is play-acting. Producing a play is not easy, yet if the various responsibilities are well allocated, it will not be physically exhaustive but, instead, a mental stimulus.

Rehearsals bring the participants closer together. When individuals strive for a finished performance, such earnest effort will serve to give insight into aptitudes never before perceived. Discussions of correct elocution, pronunciation of words, or the more effective way to walk across a stage, teach people about themselves, what they have and what they lack. The director of the play is able to discover the dependable and the temperamental personalities.

A play given recently by a group of student dietitians resulted in a finished performance before an audience of invited department directors and employees. Moreover, the esprit de corps existing among the employees viewing the performance and the student dietitians acting for them noticeably increased in the months that followed the performance of the play.

If such relaxation and new conceptions can arise out of the fun of producing as simple a play as "The Dear Departed" by Stanley Houghton, then producing plays is only the beginning of a hundred ideas on relaxation. Play production is, in its entirety and its goal, but a small example of what can be done "after hours" by student dietitians when there is sufficient incentive and real leadership.—CAROLINE HARTL, University of Wisconsin, 1934; student dietitian, Women's Educational and Industrial Union, Boston, 1935.

Contributions Received

We are indebted to the Misses Aller, Bowers and Macloon of the Women's Educational and Industrial Union for the institutional management abstracts in this issue of the JOURNAL.

We are also indebted to the following members and groups for their interest in submitting material for publication in the JOURNAL: Fern Stone, Colorado State Dietetic Association; Rosina Vance, Massachusetts Dietetic Association; Helen E. Gilson, Pennsylvania State Dietetic Association; Celia P. Swecker, President, The Virginia State Dietetic Associaton; Frances Stern; and Elizabeth Guilford of the Metropolitan Life Insurance Company.

You Are Invited to Cleveland in October *for the* ANNUAL MEETING

It affords opportunity

—for discussion through round table section meetings

—for instruction through addresses by specialists

—for information about foods, equipment, and publications through exhibits and exhibitors

☞ See how the Business Office may serve you at the Association Booth.

☞ Buy Rorer Reprints at the Booth (25c. a copy) and increase the Rorer Fund.

☞ Visit with your friends professionally and personally.

☞ Stay to the Thursday Evening Dinner for your edification and your amusement.

Here's a drink that's

EASY TO MAKE *and* EASY TO TAKE

FOR YEARS you have wanted a drink that would fill two requirements: 1. It must be nourishing. 2. It must appeal to children and grown-ups. Well, here it is, the **BANANA MILK SHAKE**, the drink you've been waiting for.

NOURISHING? Yes! Where is there a better combination than a *fully ripe banana* with its energizing sugars, its alkali-forming minerals, its vitamins (A, B, C and G), and *milk?* It's almost a balanced meal!

TASTE APPEAL? Try it! Even children who don't care for milk like the Banana Milk Shake. It has a smooth texture and a delicious flavor.

MAKE THIS NOURISHING DRINK TODAY. There's nothing complicated . . . nothing involved in the Banana Milk Shake recipe except ripe bananas and milk.

BANANA MILK SHAKE

Mash thoroughly one fully ripe banana (yellow skin flecked with brown). A strainer or egg beater can be used. To the mashed banana add one cup (8 oz.) of cold milk and shake in drink mixer or fruit jar. Serve cold. Makes one large glassful—from 10 to 12 oz.

SEND FOR FREE RECIPES FOR BANANAS

Fruit Dispatch Company J. A. D. A. 9-35
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NEWS NOTES

American Home Economics Association. More than two thousand women representing every field of education and enlightenment for the home attended the 28th annual meeting in Chicago, June 24 to 28. Several hundred high school and college students joined with the ranks of teachers, practiced homemakers and home economists connected with advertising and merchandising departments of large manufacturing concerns.

Effie I. Raitt, president, and Dean of Home Economics, University of Washington, presided over the general sessions. In her keynote speech opening the convention, Miss Raitt indicated the central program theme, "The Family and Social Policy". During the week various phases of this speech were discussed by representatives of business, government agencies, education and consumer interests, as well as by homemakers and members of the association. Miss Raitt pictured the ideal home as one with "Well organized management, ample provision for physical needs, a congenial atmosphere, and enriching affectional relationships."

During the week, The National Congress of Parents and Teachers, also convening in Chicago, met jointly with the American Home Economics Association members. "The development of a three-fold program of home services through coöperation" was presented by such well known authorities on home, school, and community as Florence E. Winchell, head of parent education and parent development, Rochester, New York; Minnie I. Irons, University of Missouri, and Mrs. Annette T. Herr, Amhurst, Massachusetts. They discussed the subjects of home economics and parent education, coöperation between home and school, and community development.

Education of the consumer was emphasized in the homemaker's section by Mrs. Millicent Yackey Taylor, Chester, Pennsylvania. She urged the organizing of courses of study in the problems of buying for the home, getting the best values, and all interrelated phases of the problem. "Our primary function" said Miss Raitt, "is to teach consumers to be intelligent buyers rather than to protect them. Fostering legislation advantageous to homes and family life will always be one of our major concerns of the association."

In the Institution Administration Section both sides of one proposal to protect the consumer by legislative grade labeling were set forth. The argument for grade labeling was presented by F. S. Shook, field secretary of Tri-Packers Association. Frank Gerber of Freemont, Michigan, former president of National Canners, spoke against the proposal. Mr. Shook argued since packers and wholesalers of canned goods buy on the basis of grades the same information should be made available to consumers. Mr. Gerber asserted that qualities of foods cannot be standardized and scored exactly. Application of grades to retail selling would require more exact grading since the enforcement would have to be through application of criminal penalties.

New developments in food research and nutrition were presented before these divisions. Dr. Florence King, in discussing the food utilization work of the bureau of home economics, Washington, D. C., said, "We work with eggs, meats, potatoes, soy beans, studying these subjects scientifically, so that people throughout the country may reap the benefits of the research. We coöperate with the Agricultural bureau in this work."

Dr. Conrad A. Elvehjem, University of Wisconsin, research scientist, reported studies made on the hemoglobin content of 1,000 children, by three scientists. He discussed the traces of elements present in our food and the very important functions they perform in the body.

Program meetings for student clubs included talks on health, foods and nutrition, textiles and standardization projects by nationally known speakers.

At the banquet, attended by more than 1,000 members, a history of the development of the home economics organization was

Rice THE ECONOMICAL ENERGY FOOD

Is Finding An Important Place on Home and Institutional Menus

try GLORIFIED RICE...One of the Many Delightful Uses

RICE is rapidly coming into its own in America — in the North as well as in the South!

The comprehensive Rice Educational Program launched by the Southern Rice Industry last fall is meeting with unusual response. Four new Rice Books are in great demand. These titles well describe them: "RICE—*200 Delightful Ways to Serve It*," "*The Story of Rice*," "*The Use of Rice on the Hospital Menu*," "*Rice in a Child's Diet*"—in all, 174 interesting pages of information on Rice and its uses!

BRIEF RICE FACTS
that Show Why RICE is GAINING IN POPULARITY

1. RICE extends the flavor of more costly foods.
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4. RICE expands four times when properly cooked.
5. RICE is a basic food for one billion persons.
6. RICE combines with all flavors and texture of foods.
7. RICE may be used at all meals and in all courses.
8. RICE is concentrated goodness, with no waste.

Great Interest in RICE Educational Program

In addition to this literature, of which over 400,000 copies have been distributed—on individual requests—a large, consistent Rice advertising program is in progress. Over one hundred million printed impressions of Rice advertisements will appear in 1935!

We shall welcome the opportunity to place any or all of the Rice books described above in the hands of Dietitians, Nutritionists, Teachers and others interested. Just mail the coupon, checking the books desired. They're *free!*

Mail Coupon for *Free* BOOKS!

Home Economics Department,
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I am interested in learning more about RICE. Please send free copies of the new Rice Books checked below:

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R-2

thrown on a screen which consisted of a large book representing open pages from the *Journal of Home Economics*. At the same time, spotlights were turned on home economists including Miss Isabelle Bevier, University of Illinois, Miss Abby Marlatt, University of Wisconsin and others, prominent in the history making of the organization.

Dr. Helen Judy Bond, Teachers College, Columbia University, is the newly elected vice-president. Gladys Brannigan, Montana State College, Bozeman, Montana, is treasurer and Ellen Le Noir, state leader of home economics extension, Baton Rouge, Louisiana, is secretary. S. Agnes Donham, Boston, Massachusetts, was reëlected controller. Miss Raitt continues as president.

The American Public Health Association will hold its 64th annual meeting in Milwaukee, October 7 to 12, 1935. At the same time and place the following organizations will be in convention: American Association of School Physicians; International Association of Dairy and Milk Inspectors; Conference of State Sanitary Engineers; International Society of Medical Officers of Health; Association of Dairy, Food and Drug Officials; and Conference of Wisconsin Health Officers. One entire session of the conference will be devoted to various aspects of mental hygiene. Papers on economic consequences of ill health, on health department functions, and the health department relationship to the activities of the welfare department and of the medical profession will make up a program on the health department and the social security program. The 15th anniversary of the association's Committee on Administrative Practice is to be commemorated by a program in which will be reviewed its history and accomplishment. Professional education will be the subject at a luncheon meeting on Wednesday. Subjects at the section meetings will include: Public Health Significance of Poisonous Substances in Foods; A Planned Milk Control for State and Nation; Standard Methods for the Examination of Shellfish; Child Health at Different Levels; Growth and Nutrition; Health Training and Instruction in Schools; Present Status of the Vitamin B Complex; and Food Advertising under the Food and Drugs Act.

Conference of Food Service Directors. Because of the desire of school cafeteria and tea room managers to meet with others who have the same problems and to discuss those problems with the hope of obtaining more efficient solutions, a conference has been called for October 4 and 5 in Hartford, Connecticut, under the auspices of the Hartford Home Economics Association. It is expected that at least 200 people interested in problems of food service will attend from all parts of New England, New York, and New Jersey.

The conference will include a program of addresses by outstanding people in this field; a demonstration of foods which can be prepared and sold for profit; inspections of representative cafeterias in Hartford; a special program by students of a junior high school showing what can be accomplished in wise food selection through the medium of health education.

The conference will open on Friday with the school program. Friday evening, Miss Alice Bradley of Miss Farmer's School of Cookery, Boston, will give the demonstration. Various cafeterias and restaurants in Hartford will be open for inspection. At the Aetna Life Insurance Company, the cafeteria and kitchens will be open, and tea will be served in the officers' dining room. Miss Marion A. Bills, assistant secretary of the Aetna Life Insurance Company will be hostess.

Excellent speakers will appear on Saturday's program covering all phases of food service problems. Dr. Mary deGarmo Bryan, Department of Institutional Management, Teachers College, Columbia University, New York, is chairman of the day. Among the speakers will be: Henrietta Radell, School of Business of Drexel Institute, Philadelphia; Constance Hart, director of School Cafeterias, Rochester System, Rochester, N. Y.; and Dr. Wells Sherman, Bureau of Agricultural Economics, Washington, D. C. The Business and Professional

FOOD IN THE OPEN CAN

● One question commonly asked concerning canned foods is whether or not the contents of the can should be removed to another container immediately after opening. This question has its origin in the belief that if food is allowed to remain in the can after opening, it will absorb an injurious substance from the can and thus become hazardous to the health of the consumer.

For this belief there is not the slightest foundation of fact. Its origin probably lies in the old "ptomaine" concept of food poisoning. Why it should persist in the light of present day knowledge is a mystery. The belief that food must be emptied immediately from the can has been as thoroughly discredited as the "ptomaine" theory of food poisoning (1).

Food poisoning is usually caused by the ingestion of food containing certain bacteria or their metabolic products. It is, in most instances, the direct result of improper preparation, handling, or storage of food (2) (3).

We have previously described in these pages how all canned foods are subjected to thorough heat treatment which destroys not only pathogenic bacteria and their products, but also the most resistant organisms which may cause spoilage. Consequently, the freshly opened can is the cleanest container in the average kitchen.

There is, therefore, no reason from the standpoint of food poisoning why the food must be removed immediately after the can is opened. In addition, food will spoil no faster or no slower in the open can than in any other open container. The same precautions should be used in its preservation as are used for any other cooked food.

With certain foods, it is desirable from the standpoint of quality to remove the food from the can. Such foods, usually those of an acidic nature, may act slowly on the can after air is admitted and small amounts of tin and iron may be absorbed. The traces of these metals have been shown by a Government laboratory to be entirely innocuous (3), but iron in particular may impart a slight taste to the food.

Modern science has dispelled the old belief that, from the standpoint of health, food must be removed immediately from the can. The cooperation of the medical profession in dispelling this old and unfair prejudice against their products is earnestly solicited by the members of the American canning industry.

AMERICAN CAN COMPANY

230 Park Avenue, New York City

(1) Journal American Medical Association, 90, 459, 1573 (1928)

(2) Preventive Medicine and Hygiene, M. J. Rosenau, Appleton-Century Co., N. Y. 5th Edition

(3) Food-Borne Infections and Intoxications, F. W. Tanner, Twin City Printing Co., Champaign, Illinois

This is the fourth in a series of monthly articles, which will summarize, for your convenience, the conclusions about canned foods which authorities in nutritional research have reached. We want to make this series valuable to you, and so we ask your help. Will you tell us on a post card addressed to the American Can Company, New York, N. Y., what phases of canned foods knowledge are of greatest interest to you? Your suggestions will determine the subject matter of future articles.

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The Seal of Acceptance denotes that the statements in this advertisement are acceptable to the Committee on Foods of the American Medical Association.

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Women's Club will act as host to the visitors, and registration will be at the club headquarters.

Special Exhibit on Nutrition, American Medical Association Meeting, Atlantic City, June 10–14, 1935. The following members of the American Dietetic Association, under the direction of Mrs. Anna DePlanter Bowes, assisted in the booth at the convention: Katharine H. Booth, Olive Larsen Brown, Claire Freeman, Helen E. Gilson, Minerva Harbage, Marie Krause, Helen Markley, Elizabeth Miller and Henriette Pribnow. This assistance was given at the request of Dr. Thomas G. Hull, Director of Scientific Exhibits for the American Medical Association.

Acting upon the plan of the physicians in charge of the exhibit, the dietitians present gave graphic illustrations of modifications of the normal diet for special diets. In addition to the nutrition exhibit, five dietitians assisted in the special exhibit on diabetes at the request of Dr. Joslin of Boston and Dr. Kepler of Rochester, Minnesota.

Physicians from thirty different states, Washington, D. C., and Cuba, registered at the booth and signified their interest. Some of the requests most frequently made were: Do you have any list of good up-to-date nutrition and diet references? Where may I get satisfactory reducing diets? How may normal diets be modified for good reducing diets? Where may copies of these food models be obtained? Where may I secure more information on vitamin B?; on vitamin D?; on vitamin units? Do you as dietitians recommend this as a good normal diet? How do you honestly feel about it? I am interested in a dietitian's point of view on the normal diet.

The great interest shown by physicians in problems of nutrition in this section of the exhibits was reflected to a considerable degree throughout the scientific sessions.

Consumers' Service Division of Greater New York. Mrs. Gannon, assistant commissioner of markets, has recently appointed Lenna F. Cooper, president, Greater New York Dietetic Association, a member of the advisory board.

The American Red Cross will hold its annual Roll Call from November 11 through November 28, 1935, to enroll members for 1936.

The New Jersey Hospital Association convened in June, and had among its speakers Dr. Walter L. Bierring, Dr. C. E. A. Winslow, Dr. Malcolm T. MacEachern, and Dr. Mary deGarmo Bryan.

Nutrition Notes is the title of a new publication appearing under the auspices of the Department of Chemistry, Yenching University, Peiping, China. The first issue received at the editorial office of this JOURNAL contains a review by Hsiang-Chuan Hou of the Henry Lister Institute of Medical Research, Shanghai, on "Vitamin A in Nutrition in China." Several references on the vitamin A content of Chinese foods are given.

The Maryland Dietetic Association is having its copy of the JOURNAL sent to the Baltimore City library.

Teacher's College, Columbia University, has been very popular with members this year. Alma Bering of Shepherd Pratt Hospital recently returned from New York where she spent a semester at the college. Ruth Hoover and Vera Stemple have been attending summer school there.

Martha Manahan is now employed as county demonstration agent, working from Ellicott City, Maryland.

The Michigan Dietetic Association met May 9 and 10 at Jackson. Mable MacLachlan presided at the first general meeting, when the following papers were read: "Mineral Studies and Lactation," Helen Hunscher; "The Treatment of Diabetes," Dr. L. H. Newburgh; and "The Ketogenic Diet," Mrs. Genevieve Rourke. At the joint meeting with the Michigan Hospital Association, Ella M. Eck spoke on "Modern Trends in the Hospital Dietary Depart-

MOTHERS · INFANTS · CHILDREN · ADULTS

—all need ample Vitamin B

THE normal Vitamin B requirement of a mother is greatly increased during pregnancy and lactation. Since modern diets are notably low in this factor, the addition of a rich, dependable source of Vitamin B is often necessary to the well-being of both the mother and the infant. This is also true in artificial feeding of infants where milk modification does not supply a sufficient amount of the appetite and growth-promoting factor.

Children, whose appetites are poor, under-par adults and patients on restricted (ketogenic and low residue) diets are benefited by Vitamin B therapy.

Squibb Vitavose Products are exceptionally palatable and dependably potent sources of Vitamin B. They also supply an abundance of Vitamin G (B_2) and assimilable iron salts. There are several Squibb Vitamin B products which may be adapted to the patients' needs.

SQUIBB VITAVOSE PRODUCTS

Squibb Vitavose—Malted wheat germ extract, 100 times richer in Vitamin B; 30 times richer in Vitamin G, than the best whole milk. Also rich in iron.

Squibb Dextro Vitavose (2 parts Dextrose, 1 part Vitavose)—Intended for modifying milk in infant feeding.

Squibb Chocolate Flavored Vitavose—Contains sucrose, Vitavose 30 per cent, cocoa, skim milk powder, vanilla. Makes a delicious milk drink, either hot or cold.

VITAVOSE

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ment." Margaret Ritchie presided at a luncheon meeting when Bertha E. Beecher spoke on "Administrative Technique." The following officers were re-elected: president, Margaret Ritchie, Battle Creek College; vice-president, Mayme Lewis, Saginaw General Hospital; secretary, Mabel A. Bailie, Battle Creek College; treasurer, Mary Rockwood, University Hospital, Ann Arbor.

The Nebraska State Dietetic Association met in connection with the national Catholic Hospital Association, at the Creighton Gymnasium, Omaha, June 21, 1935.

The morning was spent in a round table discussion at which Sr. M. Jovita, Milwaukee, Wisconsin, presided. The following subjects were discussed: "Responsibility of the Dietary Department;" "Good Foods;" "Support of the Committee on Foods of the A.M.A.;" "Food Fads;" and "Standards of Good Food Advertising."

A luncheon was held at the Hotel Paxton, with Vesta Davis, president, presiding. Miss Lenfest gave a brief talk, and a general business meeting was held.

The afternoon meeting was held at the Hotel Paxton and the following addresses were given: "Functions of Iron and Copper in the Human Mechanism," Dr. Adolph Sachs, Creighton University; "Hospital Life in India," Ester Premswarup of India; "F. E. R. A. Nutrition Work in Nebraska," Helen Newburg, nutrition worker, Omaha; and "Beverages," Edith Bettinger, Omaha.

This was the first Nebraska State Dietetic Association meeting and the committee in charge felt very encouraged because of the large number present.

New York State Dietetic Association, through its vice-president and publicity chairman, Minna G. Roese, sent out an amusing and interesting post-convention news letter, following the May, 1935, meeting at the Waldorf Astoria Hotel, New York City. The total registration numbered 324. After having observed the dietitians' ability as trenchermen, Miss Roese offers this conundrum: Why is it that dietitians who tell people how they can eat on 23 cents a day, are the heaviest eaters? She quotes the querulous Elmer Twitchell—"Boy, did you ever take a dietitian out to dinner and see her wade through the menu?"

Plans for next year include a joint meeting with the New York State Hospital Association.

Scranton Dietetic Association. The September, 1934, meeting was held in the Chamber of Commerce Building, with twenty members present. The program for the year was outlined, and members were appointed on various committees for the year.

The October meeting was held at the Overbrook Town Shop. About forty-five members were present. After enjoying the dinner, members were addressed by Mrs. Anna DePlanter Bowes of the Philadelphia Child Health Association. Royana Wilcox was appointed a delegate to the national convention in Washington.

The November meeting was held at the Moses Taylor Nurses Home. Royana Wilcox reported on the convention. Mary Huhn also gave a report on trips and genera. impression of the convention meetings Refreshments were served by the hostess. Miss Huhn. On November 16, the association held the annual card party at the Scranton Spring Brook Water Company. About two hundred people enjoyed bridge, and a substantial amount was added to the treasury.

The December meeting was held at the Nesbitt Memorial Hospital, Kingston. The guest speaker of the evening was Ann Stapler of the Nutrition Advisory Committee of the State Emergency Relief Board, Harrisburg, Pa. Miss Stapler gave an outline of her work throughout the state, and plans for the future. Refreshments were served by the hostess, Miss Hoover.

The January, 1935, meeting was held at the Scranton Spring Brook Water Company. Members were guests of H. J. Heinz Company at a dinner consisting of Heinz' products. About fifty members were present.

The February meeting was held in the Chamber of Commerce Building. The Syracuse China Company showed movies on "The Making of China." Miss Wilcox was

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FRESH OYSTERS

LET us introduce to you the Oyster Institute of North America — an organization of growers and dealers vitally interested in the promotion of fresh Oysters. Through modern methods of growing, harvesting, packing, refrigerating and shipping, the Institute sets the standard for furnishing finest quality fresh Oysters to the people of America.

This fall the Oyster Institute of North America opens a national advertising campaign. The taste-appeal and food values of fresh Oysters will be presented to millions of readers. This advertising will be subjected to the criticism and approval of recognized authorities in the medical and dietetic professions in order that no claims or inferences shall appear which could be challenged.

In addition to the advertising campaign to the consumer, the Oyster Institute of North America will also present its product in the leading medical and nutritional publications.

We invite your attention to this advertising and will appreciate your consideration of fresh Oysters as an important item in the diet. Oyster Institute of North America, 5600 Thirty-second St., N. W., Washington, D. C.

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appointed chairman of the professional nutrition group.

At the March meeting, the speaker of the evening was Mr. Sturdy of the American Can Company.

The April meeting was held at the Nurses Home of the Moses Taylor Hospital. Madame Metzelthin, director of the Research Division of the Loose Wiles Biscuit Company, spoke of her work.

The May meeting was held at the Homeopathic Hospital, Wilkes-Barre. Mary Huhn gave an interesting report on the state convention in Philadelphia.

The June meeting was a picnic held at Lake Winola, at Miss O'Hora's cottage. Swimming and fine food were enjoyed. Later a business meeting was held. The following officers were re-elected for the year 1935 and 1936: president, Ann Hoover, Nesbitt Memorial Hospital, Kingston; vice-president, Catherine Davis, Dunmore, Pa.; secretary, Helen C. Loughran, Wilkes-Barre City Schools; and treasurer, Mary Evans, Scranton Spring Brook Water Company. Committee members for the year are: Diet Therapy, Mary Huhn; Education, Clare Donahue; Administration, Marie O'Hora; Commercial, Mary Evans; Publicity, Dorothy O'Brein, Scranton, and Kathleen Dougherty, Wilkes-Barre.

The Virginia State Dietetic Association held its 7th annual meeting at the John Marshall Hotel, Richmond, Virginia, April 12 and 13 in conjunction with the Virginia Home Economics Association.

Gertrude Brown, president, opened the business meeting with an address which brought to the attention of the members the astonishing amount of work carried out since the fall meeting. Helen Roll, chairman of membership, reported having enrolled nine state and six national members. The coffers were replenished with money presented by the two local associations, Tidewater and Richmond. The guest speaker for the afternoon program was Dr. William Jordan, instructor in medicine, Medical College of Virginia, who discussed "Dietary Treatment of Diabetes.

One of the most delightful features of the convention was a joint dinner with the state home economists, represented by members from the teaching profession in colleges and high schools, the commercial field, state extension workers, state rehabilitation workers and dietitians. Hallie L. Hughes, president of the state home economics association, presided. Gertrude Brown acted as toastmistress. Toasts and responses followed Mrs. Emily Newell Blair, Chairman Consumers' Advisory Board, National Recovery Administration, Washington, D. C., the dinner speaker, gave a most enjoyable talk on "The Function of the Home in the Present Day."

Celia Swecker, chairman of the program committee, presided at the Saturday morning session when Dr. K. T. Redfield, Superintendent, Norfolk Protestant Hospital, Norfolk, addressed the group on "The Dietary Department from the Standpoint of a Hospital Administrator." J. Ernestine Becker, Johns Hopkins School of Hygiene and Public Health, gave an intensely interesting report on "Recent Progress in Nutrition."

Administration Section reports were given by Doris Woodward, University, Va., "A Study of Breakage and Loss In China and Silver;" Eula Porter Robins, Fredericksburg State Teachers College, "Administration Problems of the College Tea Room;" and Margaret Porter, "Personnel Problems in the Hospital."

Other addresses of interest were given by Dr Ernest R. Groves, University of North Carolina on "The Human Values of the Home" and by Mrs. Emily Newell Blair on "Consumer Opportunities."

The following officers were elected or re-elected for the ensuing year: president, Celia Swecker, Retreat Hospital, Richmond; vice-president, Janet L. Cameron, food and nutrition specialist, Extension Division, V.P.I., Blacksburg; secretary, Kathryn Heitshu, Medical College of Virginia, Richmond; and treasurer, Bertha Ide, Norfolk Protestant Hospital, Norfolk.

Kathryn Heitshu, of the Medical College of Virginia, Hospital Division, who has been on a leave of absence for the past six

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months organizing the dietary department of the American Hospital in Paris, returned to her post of duty, June 15.

Margaret Porter who recently completed the course for student dietitians at the Medical College of Virginia sailed for France on April 24 to take charge of the dietary department of the American Hospital in Paris.

Dr. Martha Koehne, chairman of the A. D. A. inspection committee, assisted by the state committee, consisting of Bernice R. Varner, Harrisonburg State Teachers College, representing a college home economics staff, Helen Roll, Richmond, representing the Richmond Dietetic Association, and Celia Swecker, Richmond, representing the state association, inspected the course for student dietitians given by the Medical College of Virginia on May 4.

Mary Alice Grantham who recently completed the course for student dietitians at the Medical College of Virginia, has accepted a position as assistant dietitian to Mary Trout of the Martha Jefferson Hospital, Roanoke.

Janet L. Cameron, nutrition specialist of Virginia Extension Division, is on leave of absence for six weeks to study at the University of Wisconsin.

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WHO'S WHO IN THIS ISSUE

Hazel C. Cameron received an M.A. degree in chemistry from Columbia University, and a B.Sc. in medicine from West Virginia University. She is registered at the Graduate School of Medicine, Chicago, where she hopes to complete her M.D. degree. Before going to West Virginia, she was assistant in pathology at Ohio State University Medical School, assistant pathologist with the Physicians' Clinical Laboratory, Seattle, Washington, and pathologist at St. Luke's Hospital, Cedar Rapids, Iowa. Miss Cameron is at present research nutritionist at the Experiment Station, and assistant professor of physiology and nutrition at West Virginia University. She is the author of a popular circular, *Vitamins Every-Day*, and numerous other popular as well as scientific articles.

Charlotte Skooglund, B.S., R.N., is president of District No. 1 of the Pennsylvania State Nurses' Association, and supervisor of education, School of Nursing, Philadelphia General Hospital, Philadelphia.

Lenna F. Cooper is chief of the Department of Nutrition, Montefiore Hospital, New York City, president of the Greater New York Dietetic Association, and chairman of the Professional Education Section of the American Dietetic Association. Miss Cooper holds a master's degree from Columbia University. She is co-author of the textbook, *Nutrition in Health and Disease for Nurses*.

Jessie B. Brodie received her B.A. degree from the University of Toronto and her Ph.D. degree from Columbia University. She is at present professor of home economics at Peabody College, Nashville, Tennessee.

Oscar Swineford, Jr., M.D., is a member of the Association for the Study of Allergy, and an instructor in Internal Medicine and director of the Allergy Clinic of the University of Virginia Medical School.

Genevieve C. Rourke received her student dietitian training at Michael Reese Hospital, Chicago, in 1929. Later she became instructing supervisor in dietetics for nurses, then metabolism dietitian at the University of Michigan Hospital. She is now instructor in the Dietetic Department of Internal Medicine, University of Michigan.

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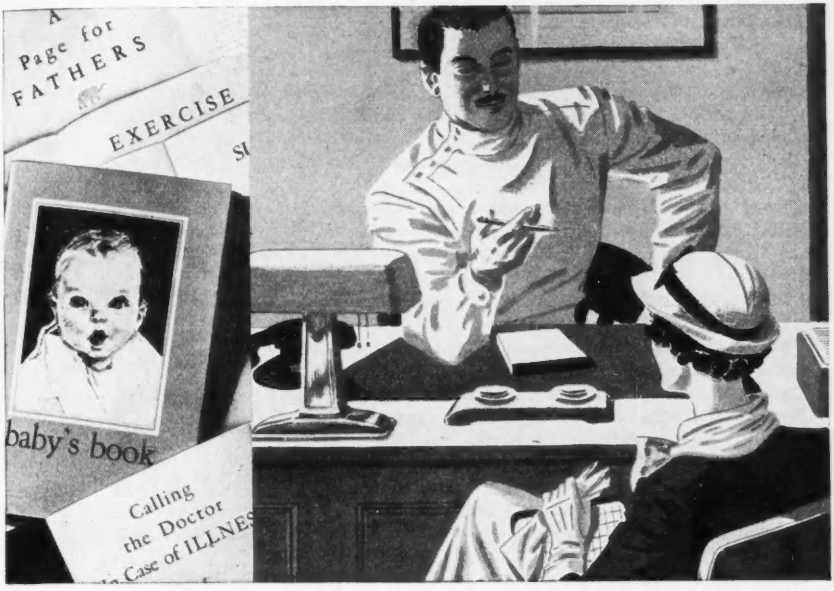

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